

**SECTION 3**  
**PUBLIC COMMENTS AND DOE RESPONSES**

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## **SECTION 3**

### **PUBLIC COMMENTS AND DOE RESPONSES**

This section presents a side-by-side display of the comments received by DOE during the public comment period on the *Draft TC & WM EIS* and the DOE response to each comment. Letters have been reproduced as they were received. To find a specific commentor or comment in the following pages, search the Index of Public Officials and Interest Groups or the List of Commentors that follows the Table of Contents to identify the page numbers on which the comments and DOE responses appear. In many cases, individual commentors submitted similar comments on a particular subject. DOE's responses to similar comments are the same.

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**Commentor No. 1: Martin Bensky**

**From:** Martin Bensky [mbensky@msn.com]  
**Sent:** Monday, October 26, 2009 7:10 PM  
**To:** tc&wmeis@saic.com  
**Cc:** Alan Waltar; Darrell Fisher; Gary Troyer; Gerry Woodcock; Mike Fox; Wanda Munn; Tony Brooks; Ralph Johnson; John Boland; Fred Mann; Abe vLuik  
**Subject:** Radiologic Risk

Perusing the TC&WM EIS, I am unable to judge whether the results shown in Figs. S-15 through S-22 are credible or not since I am not told what magnitude of radiation dose is related to the stated risk. Most knowledgeable scientists have long since rejected the Linear/No Threshold (LNT) Hypothesis since it has found no supporting data, and abundant conflicting data, in the 60 or so years since the hypothesis was proposed. If this hypothesis was used as the basis for estimating the indicated risk, I strongly object to its use. Of great importance to selection of a closure mode is the fact that, based on your data and my estimate of logical adjustments to your use of the LNT, realistic relationships between dose and incidence of cancer would result in the selection of no-action as the logical choice in every instance. This, of course, has enormous impact on the cost of tank closure and waste management.

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 2121 Briarwood Ct.  
 Richland, WA 99354  
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**I-1**

**1-1**

Regarding the application of the Linear/No Threshold model, risk coefficients used in this *TC & WM EIS* are those recommended in Federal Guidance Report No. 13, *Cancer Risk Coefficients for Environmental Exposure to Radionuclides*, and that report employs the Linear/No Threshold model. In the report, the EPA notes that several expert panels have concluded that the Linear/No Threshold model is sufficiently consistent with current information on carcinogenic effects of radiation that its use is scientifically justifiable for the purpose of estimating risks from low-dose radiation.

**I-2**

**1-2**

DOE believes that long-term actions are required to permanently reduce the risk to human health and the environment posed by the waste in the tank systems.

**I-3**

**1-3**

DOE agrees that any path forward on tank closure and waste management will have substantial cost implications. The Summary, Section S.6, and Chapter 2, Section 2.11, of this *TC & WM EIS* summarize and compare the relative costs of the alternatives. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

Commentor No. 2: Jeanne Raymond

**From:** Jeanne Raymond [raymondj@peak.org]  
**Sent:** Monday, October 26, 2009 8:05 PM  
**To:** tc&wmeis@saic.com  
**Subject:** Closure of Hanford to all radioactive waste

DOE and interested parties,

As was agreed between Washington, Oregon, and the United States, Hanford should be cleaned and shut down permanently. No wastes should be coming into Hanford. Once the cleanup of past storage, spills, and waste left on the Hanford reservation, the site must be closed to future importation. Shut Down Hanford Forever. There must be no more threat to the Columbia River, upstream or downstream, upwind or downwind.

Must we restate what has already been established? There should be no disposal of new radioactive wastes at Hanford. Protect the water, air, and soil, as was expected and agreed to by the three parties.

Sincerely,  
Jeanne Raymond  
Corvallis, OR  
raymondj@peak.org

This is a message from the Department of Energy  
DRAFT HANFORD TANK CLOSURE AND WASTE MANAGEMENT  
ENVIRONMENTAL IMPACT STATEMENT AVAILABLE FOR PUBLIC REVIEW

The U.S. Department of Energy (DOE) today announced that the Draft Tank Closure and Waste Management Environmental Impact Statement (EIS) for the Hanford Site has been filed with the Environmental Protection Agency, and the Agency's Notice of Availability of the EIS is expected to appear in the Federal Register on October 30, 2009. This will initiate a public comment period extending to March 19, 2010. The Washington State Department of Ecology is a cooperating agency on the Draft EIS.

The National Environmental Policy Act and its implementing regulations require federal agencies to integrate environmental values into their decision-making process by considering the environmental impacts of their proposed actions and reasonable alternatives for implementing those actions. This Draft EIS analyzes alternatives for three types of actions: retrieving, and managing waste from 177 underground storage tanks at Hanford and closure of the single-shell tanks (SST); decommissioning of the Fast Flux Test Facility and its auxiliary facilities; and

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Comment noted.

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

Comment noted.

See response to comment 2-2 for a discussion on the transport and disposal of offsite waste.

The purpose of this *TC & WM EIS* is to analyze potential impacts of DOE's proposed actions to retrieve and treat the Hanford tank waste; close the Hanford SST system; store and/or dispose of the waste generated from these tank waste activities; decommission FFTF; and expand or upgrade waste management capabilities to support ongoing and planned waste management activities for on- and offsite waste to facilitate cleanup at Hanford and other DOE sites. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

**Commentor No. 2 (cont'd): Jeanne Raymond**

continued and expanded solid waste management operations on site, including the disposal of Hanford's low-level radioactive waste (LLW) and mixed low-level radioactive waste (MLLW) and limited volumes of LLW and MLLW from other DOE sites in an Integrated Disposal Facility at Hanford.

The Draft EIS includes several preferred alternatives for the actions analyzed, including:

Disposal of Hanford's LLW and MLLW onsite and deferral of the importation of offsite waste to Hanford at least until the Waste Treatment Plant is operational, consistent with DOE's proposed Settlement Agreement with the State of Washington; Retrieving waste from the 149 SSTs consistent with the Tri-Party Agreement and landfill closure of the tanks; The down-selection of a range of treatment alternatives that will provide for chemical separations and supplemental low-activity waste treatment capability; and Entombment of the Fast Flux Test Facility at Hanford, with some special case waste going to DOE's Idaho National Laboratory for treatment and return to Hanford for disposal.

The Hanford Site is located in southeastern Washington State along the Columbia River, and is approximately 586 square miles in size. From early 1940 through 1980's Hanford's mission included defense-related nuclear research, development, and weapons production. DOE's mission now is focused on the environmental cleanup of the Hanford Site.

Additional information about the Draft Tank Closure and Waste Management EIS can be found at

<http://www.hanford.gov/orp/?page=146&parent=0>. Information about the ongoing cleanup mission at the Hanford Site can be found at <http://www.hanford.gov>.

DOE will hold public hearings on the Draft EIS in Washington State, Oregon, Idaho and New Mexico during the public comment period and will announce dates, times and locations for the public hearings in the

Federal Register and in local news media at a later date. DOE will accept written and oral comments at the public hearings.

Written comments on the Draft EIS can also be mailed to Mary Beth Burandt, EIS Document Manager, DOE Draft TC&WM EIS Comments, Office of River Protection, P.O. Box 1178, Richland, Washington 99352. Comments can also be submitted via email at [TC&WMEIS@saic.com](mailto:TC&WMEIS@saic.com), or by faxing to (1-888) 785-2865. In preparing the Final EIS, DOE will consider all comments received or postmarked by March 19, 2010 and will consider comments received after that date to the extent practicable.

*Response side of this page intentionally left blank.*

Commentor No. 3: Martin Bensky

**From:** Martin Bensky [mbensky@msn.com]  
**Sent:** Tuesday, October 27, 2009 2:44 PM  
**To:** tc&wmeis@saic.com  
**Cc:** Alan Waltar; Darrell Fisher; Gary Troyer; Gerry Woodcock; John Boland; Mike Fox; Wanda Munn; Tony Brooks; Ralph Johnson  
**Subject:** Comment

In view of the enormous expenditure of public funds needed to implement the selected courses of action, I believe the following questions should be answered:

How much cancer will be prevented by refusing to bring outside waste into Hanford for burial?

How much cancer will be prevented by retrieving 99% of waste rather than a much less challenging amount from Hanford tanks?

Is there any basis other than response to public outcry from anti-nuclear activist groups for decisions that are irresponsibly extravagant?

The U.S. Department of Energy conducted a risk assessment that clearly demonstrated that the modest risk to a nearby resident at some future time was overwhelmingly due to waste that had already leaked from the tanks. The contribution to risk from a tank suitably grouted with appropriate, inexpensive materials was negligible. A rational assessment of the analytical results would indicate clearly that retrieval and vitrification of tank waste is not warranted by any sensible cost/benefit criteria.

I believe that no-action is the appropriate course of action for several activities for which very expensive, potentially hazardous courses of action have been selected. Worker safety has clearly not been considered in the decision-making process. Use of public money for waste management demands that real risk, not perceived risk, should be the basis for choosing courses of action.

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The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the *TC & WM EIS* analyses. These include Tank Closure Alternatives 4, 6A, and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all or part of the SST system. Please see Appendix D of this *TC & WM EIS* for a detailed discussion of waste retrieval.

3-2

Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*. Waste Management Alternatives 2 and 3 include disposal of offsite waste as part of the analysis. For more information on cancer risk associated with these Tank Closure and Waste Management alternatives, please see Chapter 5, Sections 5.1.2 and 5.3.2, and Appendix Q, Section Q.3, of this EIS.

3-3

The TPA, a legal agreement between DOE, Ecology, and EPA, identifies cleanup actions and schedule commitments, including tank waste retrieval and vitrification milestones. As described in Chapter 2, Section 2.10, of this *TC & WM EIS*, retrieving and vitrifying tank waste would reduce long-term impacts on groundwater and human health. The importance of these long term impacts is discussed at length in Chapter 5. Further, Chapter 2, Section 2.11, of this EIS summarizes and compares the relative costs of the alternatives, including the No Action Alternative for tank closure.

See response to comment 3-2 for a discussion of DOE's decisionmaking process.

3-4

Worker safety has been analyzed in the public and occupational health and safety sections throughout this EIS. This analysis will be considered, along with other environmental, technical, and economic factors, in DOE's decisions, which will be discussed in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

3-6

**Commentor No. 4: Mike Fox**

**From:** Mike Fox [mike@foxreport.org]  
**Sent:** Tuesday, October 27, 2009 3:07 PM  
**To:** Martin Bensky; tc&wmeis@saic.com  
**Cc:** Alan Waltar; Darrell Fisher; Gary Troyer; Gerry Woodcock; John Boland; Wanda Munn; Tony Brooks; Ralph Johnson  
**Subject:** Re: Comment

Marty:

Those are some good questions. From our world of risk assessment and management we should also be asking:

1. What will be the estimated costs of saving a life (in dollars spent per life saved) around Hanford as a result of this multi-billion dollar safety activity and safety expenditures? Some estimates of the total are now more than \$50 billion.
2. How does this estimate compare with other state sponsored safety programs, (highway safety, home smoke detectors, school safety, street safety, etc.), as measured by the same factor, dollars spent per life saved.
3. Can we make a list of such risks to the citizens of the state, and list the dollars spent per life saved for each risk, in descending order
4. I contend that the Washington State Health Department have their safety programs funded inversely to the actual harm being done in these activities.
5. We do know there are more than 40,000 deaths per year in the State, a nominal 8000 of them cancer deaths. There are statistically significant excesses of several types of cancer in King County, but the causes of these deaths are not related to Hanford activities and thus are somehow less dead and more acceptable than those who are.
6. We need some answers from the state.

Mike

4-1

4-1

This *TC & WM EIS* analyzes potential impacts associated with DOE's proposed actions and alternatives to safely retrieve, treat, and dispose of Hanford tank waste; decommission FFTF; and upgrade/expand waste disposal capacity at Hanford to provide for disposal of on- and offsite DOE waste. Chapter 2, Section 2.11, of this EIS also summarizes and compares the relative estimated costs of the alternatives. However, any estimate of dollars spent per potential life saved would be highly speculative and is considered beyond the scope of this EIS. Decisions made by DOE on the proposed actions will be based on relevant factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations.

4-2

4-2

Costs of state-sponsored safety programs are out of scope (not included) in NEPA EISs and are, therefore, not analyzed in this *TC & WM EIS*.

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This *TC & WM EIS* includes analyses of potential human health risks associated with the proposed actions and alternatives to retrieve, treat, and dispose of Hanford tank waste; decommission FFTF; and expand waste disposal capacity at Hanford to provide for disposal of on- and offsite DOE waste. Cancer mortalities that are not directly, indirectly, or cumulatively attributable to Hanford activities are beyond the scope of this EIS.

Commentor No. 4 (cont'd): Mike Fox

----- Original Message -----

**From:** Martin Bensky [mbensky@msn.com]

**Sent:** Tuesday, October 27, 2009 2:44 PM

**To:** tc&wmeis@saic.com

**Cc:** Alan Waltar; Darrell Fisher; Gary Troyer; Gerry Woodcock; John Boland; Mike Fox; Wanda Munn; Tony Brooks; Ralph Johnson

**Subject:** Comment

In view of the enormous expenditure of public funds needed to implement the selected courses of action, I believe the following questions should be answered:

How much cancer will be prevented by refusing to bring outside waste into Hanford for burial?

How much cancer will be prevented by retrieving 99% of waste rather than a much less challenging amount from Hanford tanks?

Is there any basis other than response to public outcry from anti-nuclear activist groups for decisions that are irresponsibly extravagant?

The U.S. Department of Energy conducted a risk assessment that clearly demonstrated that the modest risk to a nearby resident at some future time was overwhelmingly due to waste that had already leaked from the tanks. The contribution to risk from a tank suitably grouted with appropriate, inexpensive materials was negligible. A rational assessment of the analytical results would indicate clearly that retrieval and vitrification of tank waste is not warranted by any sensible cost/benefit criteria.

I believe that no-action is the appropriate course of action for several activities for which very expensive, potentially hazardous courses of action have been selected. Worker safety has clearly not been considered in the decision-making process. Use of public money for waste management demands that real risk, not perceived risk, should be the basis for choosing courses of action.

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*Response side of this page intentionally left blank.*

**Commentor No. 5: Martin Bensky**

**From:** Martin Bensky [mbensky@msn.com]  
**Sent:** Tuesday, October 27, 2009 4:06 PM  
**To:** tc&wmeis@saic.com; Mike Fox  
**Cc:** Alan Waltar; Darrell Fisher; Gary Troyer; Gerry Woodcock; John Boland; Wanda Munn; Tony Brooks; Ralph Johnson  
**Subject:** Re: Comment

Of course it's sad that relative risk is never considered in this obscene waste of public money. DOE should at least consider absolute risk, and on that basis, much Hanford work and the decision to refuse outside waste cannot be justified. Which kinds of cancer are statistically significant in King County? I'd like that information as potentially useful back pocket trivia. Incidentally, my notes were submitted as formal comments about the EIS. I think DOE is required to respond, though not for quite a while.

Marty

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Human health risks and transportation risks associated with exposure to radiation are estimated for all of the alternatives evaluated in this *TC & WM EIS*. These risks are presented both in terms of radiation dose (using the unit roentgen equivalent man, or rem) and LCFs (the probability of incurring a future cancer that results in a death). Consistent assumptions are used to analyze the alternatives to allow a meaningful comparison of the associated risks. Such comparisons are considered relative; while the absolute risk for a single alternative could be in question due to lack of data, the uncertainty of future decisions, or other uncertainties, the risks associated with each of the alternatives can still be compared because the same assumptions are used for analysis.

The *TC & WM EIS* Summary shows the risks for each alternative; these risks are compared in relative terms in Section S.5.5 and related subsections. The Summary, Section S.5.5.3, Disposal of Offsite Waste, states, "...receipt of offsite waste streams that contain specified amounts of certain radionuclides, specifically, iodine-129 and technetium-99, could have an adverse impact on the environment. Comparison of human health impact estimates at the IDF-East barrier under Waste Management Alternative 2 for Tank Closure Alternative 2B, with and without offsite waste (see Figure S-22), illustrates this finding. Estimates of peak radiological risk for Waste Management Alternative 2, including disposal of offsite waste at IDF-East, are a factor of approximately six higher than those under Waste Management Alternative 2, with offsite waste removed." Based on this conclusion, DOE proposes, as part of the Preferred Alternative for waste management, that receipt and disposal of offsite waste be delayed, at least until the WTP is operational (74 FR 67189), except for certain limited exemptions.

DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

5-2

This *TC & WM EIS* includes analyses of potential human health risks associated with the proposed actions and alternatives to retrieve, treat, and dispose of Hanford tank waste; decommission FFTF; and upgrade/expand waste disposal capacity at Hanford to provide for disposal of on- and offsite DOE waste. DOE is obligated to fulfill its responsibilities to protect the human and natural environment within the Hanford region, regardless of whether some might consider cancer incidences in King County, Washington, to have a



**Commentor No. 5 (cont'd): Martin Bensky**

higher statistical significance and warrant greater attention from public-policy decisionmakers. Analysis of cancer incidence in King County, Washington, is not within the scope of the analyses included in this *TC & WM EIS*.

**5-3**

Consistent with CEQ and DOE NEPA requirements (40 CFR 1503.410 and 10 CFR 1021.313(c), respectively), DOE's responses to comments received on the *Draft TC & WM EIS* are included in this CRD, a volume of this *Final TC & WM EIS*.



**Commentor No. 6: Martin Bensky****From:** Martin Bensky [mbensky@msn.com]**Sent:** Friday, October 30, 2009 5:14 PM**To:** tc&wmeis@saic.com**Cc:** Bill Farris; Gary Troyer; Gerry Woodcock; Mike Fox; Wanda Munn; John Boland; Bob Schenter; Clinton Bastin; Jim Paglieri; Randy Brich; Sid and Marlene Sourani; Annette Cary**Subject:** EIS Comment

The \$12B cost estimate for the Waste Treatment Plant, which does not include retrieval of tank waste or ultimate disposal of vitrified waste, is, among other possibilities, sufficient to provide health insurance for approximately 300,000 children from birth until high school graduation. I recognize that it is not the Department of Energy's (USDOE) responsibility to assess whether resources allocated to them represents the best use of those resources. Does USDOE have the responsibility, however, to conduct risk assessments and feed results back to their resource provider to let them know that the minuscule benefit of this resource expenditure is unlikely to come anywhere near justifying the expenditure?

Anyone familiar with the simplest principles of Systems Engineering understands the idea of generating information within one function and feeding it back to previous functions to assess whether proposed actions are appropriate. In the absence of credible risk assessments whose results have been clearly provided to appropriate decision-making functions, the selected courses of action outlined in this Environmental Impact Statement (EIS) have not been shown to have any legitimate, justifiable basis. Some organization, above and outside the USDOE, clearly has not exercised their responsibility and authority to determine the best use of America's finite resources. If the selected actions proposed in this EIS are implemented, I believe that USDOE and its oversight organizations have failed to meet their responsibilities.

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**6-1****6-1**

Risk analysis is provided throughout this *TC & WM EIS*. This analysis will be considered, along with other environmental, technical, and resource expenditure factors, in DOE's decisions, which will be discussed in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

**6-2****6-2**

All of the analyses in this EIS, including analysis of potential risks to human health and the environment, are available to, and used by, senior agency decisionmakers in making future decisions. Courses of action, however, have not yet been selected by DOE. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

**6-3****6-3**

DOE believes it has met its responsibilities under NEPA and CEQ implementing regulations to seriously consider the potential environmental consequences of its proposed actions and the full range of reasonable alternatives before making decisions about how to proceed.

**Commentor No. 7: Clinton Bastin**

**From:** Clinton Bastin [clintonbastin@bellsouth.net]  
**Sent:** Saturday, October 31, 2009 1:22 PM  
**To:** Martin Bensky; tc&wmeis@saic.com  
**Cc:** Bill Farris; Gary Troyer; Gerry Woodcock; Mike Fox; Wanda Munn; John Boland; Bob Schenter; Jim Paglieri; Randy Brich; Sid and Marlene Sourani; Annette Cary  
**Subject:** Re: EIS Comment

THE DOE HAS SPENT MORE THAN \$1 TRILLION AND PROVIDED LITTLE OF VALUE. IT DELIBERATELY SUPPRESSED THE REPORT CORRECTING FALSE ALLEGATIONS BY ALVAREZ AND MAKHIJANI IN MIT'S *TECHNOLOGY REVIEW* AND *THE WASHINGTON POST* ABOUT DANGERS OF NUCLEAR WASTE IN ORDER TO OBTAIN \$100 BILLION FOR JOBS, PROMOTIONS, ETC.

I USED THE REPORT FOR MY LETTER PUBLISHED IN *TECHNOLOGY REVIEW* - BUT THE EDITORS ALSO PUBLISHED A LETTER FROM ALVAREZ

MISQUOTING MY LETTER IN ORDER TO SAY I WAS WRONG

DOE MAKES BERNIE MADOFF LOOK LIKE A SIDEWALK PICKPOCKET

SEE MY ARTICLE IN JUNE 2009 ISSUE OF *NUCLEAR ENGINEERING INTERNATIONAL*, BELOW

DITCH THE DOE

The United States is the only nation that relies on a large federal department to direct and manage energy and nuclear policies, programs, research, development and related activities. The U.S. Department of Energy (DOE) was formed in 1977 to direct national nuclear programs, help resolve energy challenges resulting from America's loss of ability in 1970 to recover enough oil to meet demands, and reduce atmospheric pollution from combustion of fossil fuels.

Instead it has spent about one trillion dollars and done virtually nothing to resolve energy and environmental challenges. It has lost the ability to produce nuclear materials needed for medicine, space exploration and defense and abandoned its responsibility to manage used nuclear power plant fuels and dispose of nuclear wastes. Major changes are needed to resolve energy and environmental challenges, produce nuclear materials, dispose of nuclear waste, while avoiding wasteful expenditures.

The process for change should begin with a decision by US President Barack Obama to follow President Harry S. Truman's example in 1950 when America was faced with the need for a strong nuclear deterrent against military aggression or a nuclear attack by the Soviet Union. President Truman listened to and accepted

7-1

7-1

DOE expenditures are beyond the scope of this *TC & WM EIS*.

**Commentor No. 7 (cont'd): Clinton Bastin**

recommendations from former Manhattan Project Corps of Engineers officers who had provided direction for first and imminently successful use of nuclear technology, by Dupont

President Obama, his energy advisors, energy leaders in Congress and government agencies and others would meet with the engineers and scientists who had provided direction for the safe, successful, well-managed programs and initiatives of the Atomic Energy Commission, Energy Research and Development Administration and Department of Energy.

THE GREATEST NEEDS ARE:

1. A national commitment

A national commitment must be made to a major increase in use of nuclear power to generate electricity and development of technology for more efficient use of nuclear materials. France uses nuclear power for 80% of its total generation of electricity, while the US uses nuclear power for 80% of its pollution-free and carbon-free generation of electricity but only 20% of its total electricity, and releases three times as much carbon dioxide and bio-fuel pollutants to the atmosphere, per person, as France.

Low-temperature, low-density energy sources such as solar, geothermal, wind, and tidal will always be inefficient, expensive and unreliable for generation of electricity for most industrial and domestic applications, and of limited availability in most areas. Batteries, transformers and smart grids and meters for increased reliability and availability will be complex, vulnerable, and add to the cost. The energy needed to build, maintain and operate systems for generation of electricity from so-called "renewable" sources (except hydropower) will approach and may exceed the amount generated, particularly if distributed over wide areas.

2, Corporate management

Competent corporate instead of government management to produce nuclear materials for national needs, manage and recycle used fuel from nuclear power plants and dispose of nuclear wastes. There have been great improvements in safety and performance of nuclear power plants in the US since the accident at Three Mile Island by the commitment to excellence and understanding of operations by plant operators, coordinated by the Institute of Nuclear Power Operations, with improved oversight by the US Nuclear Regulatory Commission.

The outstanding safety and success of Dupont research, development, design, construction and operations at the Savannah River Plant (SRP) were the result of corporate management by Dupont comparable to that for its commercial activities. The repository investigated and planned by Dupont for final disposal of nuclear waste at SRP was unique in the US in that formidable, measurable, geologic

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**Commentor No. 7 (cont'd): Clinton Bastin**

barriers provided full assurances of isolation for geologic periods of time and a committee of state political and technical leaders appointed by the state governor supported the investigation and plan.

In the 1960s, Dupont's reprocessing facilities were the best in the world due to their capability for remote, rapid replacement of failed equipment, rapid restart after shutdown, and containment of radioactivity under all conditions, including fires and explosion.

**3. Better systems**

Better systems are needed for development and direction of energy and nuclear policies. : Armed with better understanding of science, energy, and nuclear technology and the importance of competent corporate management, President Obama would announce the commitment to increased use of nuclear power to generate electricity, resume the downsizing of the DOE that was underway during the Clinton Administration, and form the US Energy and Nuclear Technology Policy Board

This nine-member board of experts would develop and direct national energy and nuclear policies and programs. Five members would be appointed by The President with the advice and consent of the Senate, two would be ex-officio, representing the majority and majority leaders of House and Senate energy committees, one would be appointed by the Edison Electric Institute and one by the Business Roundtable Appointed members would serve seven-year, overlapping terms and meet bimonthly or more often to review energy and nuclear policies and programs and make decisions or recommendations for changes as needed. A full-time staff of about 15 engineers and/or scientists with appropriate support would continually review energy and nuclear programs and inform the board. Two or three national laboratories under board direction and oversight would perform research and development in support of nuclear material production, reprocessing and related activities.

Clinton Bastin, Chemical Engineer/Nuclear Scientist US Department of Energy  
(retired)  
clintonbastin@bellsouth.net

*Response side of this page intentionally left blank.*

**Commentor No. 8: Jerry Johnson**

October 27, 2009  
6621 W. Victoria Ave.  
Kennewick, WA 99336

Dear Ms Burandt:

I read the article in today's paper about the clean up activities at Hanford. With the words about tearing down FFTF I am certain the supporters will once again try to keep it going. I am convinced that this will never happen; the supporters fail to recognize some technical issues that might not be able to be solved. So I wanted to provide you with those issues for the record.

In the 1980's I was heavily involved with FFTF. I had various management positions. Two of them are pertinent to restarting the reactor. I decided to check my concerns with a member of the ACRS (Advisory Committee on Reactor Safeguards) which is tied to the U.S. NRC. This member of the ACRS confirmed my views in phone conversation on June 25, 2009.

If FFTF were to be operated as a commercial facility it would have to be licensed by the NRC.

When we were in the process of getting FFTF built and approved to operate Westinghouse did considerable testing and analysis of potential reactor accidents. Two of these were the LOF, which is a loss of coolant flow and the HCDA (Hypothetical Core Disruptive Accident). The HCDA involved the analysis of various reactivity insertions. Results of analyses and tests were presented to the NRC. While NRC certification of FFTF via a full CFR report was not required we still went through all of the steps as if we were going to apply for a license.

The reactor accident analyses were based on a series of tests conducted at the TREAT facility in Idaho. If FFTF were to be reassembled such accident analyses would have to be done again and if there were any changes in the composition of the fuel or configuration of the pellets the NRC would require data to show that the accidents can be mitigated by the various control and shut-down systems. It may not be possible to do such tests today. So I feel that having an accepted reactor safety analysis will be a major hurdle.

My other technical concern is with the state of the reactor vessel. When the reactor was running there was a neutron flux gradient across the wall as well as a thermal gradient. Upon shutdown of the reactor these conditions would produce a state of tri-axial stress in various parts of the vessel. A restart, following a very long shutdown, could result in the formation of cracks because of the nature of that residual stress. We had a program to monitor the structural integrity of the vessel and other components. There were some assemblies that held surveillance samples of the materials used for the various components, including the reactor vessel. These samples were used to evaluate the mechanical properties of the steel; most notable being fracture mechanics tests.

8-1

8-1

Comment noted.

**Commentor No. 8 (cont'd): Jerry Johnson**

Now the ACRS would require the operator to show that the restart would not result in formation of any cracks. The only way to determine this would involve the testing of these surveillance samples. I am not certain that they still exist.

The ACRS member told me that the licensing process takes seven years. Without priority from the US President any new request for the licensing process goes to the bottom of the list.

So my main concerns are these technical issues with the safety tests and the material condition tests. I do feel that they could be "show-stoppers". The rest of my thoughts are only my opinions.

I feel that getting a fuel fabrication system would be difficult but doable. The real issue comes with the disposal of spent fuel and that remains a major issue in the US. Without a viable plan for disposal it may not be possible to restart the reactor.

I am of the opinion that the whole effort to get FFTF up and running would cost a number of billions of dollars. What company would spend billions before getting any payback?

Finally I do not think that the reactor would survive on a single mission. The cost of operating it might be prohibitive relative to the income from isotope production. Operating FFTF as a multi-purpose facility would lead to numerous issues.

My viewpoint is that the best thing to do is to dismantle the reactor and move on.

Yours truly,



Jerry Johnson

xxx-xxx-xxxx

johnson66@charter.net

|| 8-1  
cont'd

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Commentor No. 9: Don M. Hallum

Oct 31 2009

Mary Beth Burandt  
EIS Document Manager  
DOE of River Protection  
P.O. BOX 1178, Richland, WA 99352

I AM writing in response to the 150 page "BOOK" that was sent to me.  
It came to our ~~household~~ <sup>household</sup> I am wondering how many other W.F. households  
received this large 150 page document?

I'm in agreement that the Hanford site needs to be cleaned up  
and don't sure most people do - especially in the Tri-Cities,

I would like to know how much our money was spent by DOE on this  
book & mailing?

Sincerely,  
DON M. HALLUM  
524 Maple St #203  
Edmonds WA 98020  
■■■■■

PS: To me the figure at bottom of 5113, 513 alternative is the most  
cost efficient option. Others are way too expensive.  
Also, hardly any of us need the information sent out, but it's too late.

9-1

9-1

Printing costs for hard copies of the draft EIS (and CDs) were approximately \$330,789; shipping cost for copies was approximately \$34,194. In total, approximately \$364,983 was spent by DOE to print and mail copies, including CDs, of the draft EIS.

9-2

Summary, Table S-30, and Chapter 2, Table 2-51, present the cost estimates for only final-waste-form disposal under each of the Tank Closure alternatives. These disposal costs compose a portion of the projected total costs associated with each alternative, which are presented in Tables S-30 and 2-51.

9-2

Commentor No. 10: Joseph John Bevelacqua

## Bevelacqua Resources

343 Adair Drive  
Richland, WA 99352  
[www.bevelacquaresources.com](http://www.bevelacquaresources.com)  
[bevelresou@aol.com](mailto:bevelresou@aol.com)  
xxx-xxx-xxxx

BR-RL-0509

Mary Beth Burandt  
EIS Document Manager  
DOE Office of River Protection  
P.O. Box 1178  
Richland, WA 99352

December 7, 2009

RE: DOE/EIS-0391, Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site

Dear Ms. Burandt:

Thank you for providing a copy of DOE/EIS-0391, Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site. The document represents a significant step forward in the Hanford cleanup, but omits essential elements of environmental protection advocated by the International Commission on Radiological Protection (ICRP). This is particularly puzzling since the draft EIS references ICRP 103, which contains new, explicit guidance for environmental protection.

ICRP 103, published in 2007, provided revised environmental guidance initially outlined in ICRP 91 (2003). Given the availability and publication dates of these documents and the international acceptance of the recommendations of the ICRP, not including the use of Reference Animals and Plants (RAAP) in the draft EIS is quite astonishing. In view of the care taken by DOE in addressing the cultural aspects of the cleanup and the importance of natural species in native cultures, not including RAAP in the assessment is a serious omission that requires correction.

Correcting this omission would be relatively straightforward since ICRP 108 (2008) provides a set of dose conversion factors that allows the dose to be calculated to RAAP including organisms relevant to the Hanford Site. As defined in ICRP 108, these species include reference deer, reference duck, reference bee, and reference wild grass that are present at the Hanford site. Performing the requisite calculations would strengthen the draft EIS and bring it into compliance with current international guidance. Addressing these issues in a timely manner is in the best interest of the Hanford stakeholders.

10-1

10-1

This *TC & WM EIS* used the latest guidance from International Commission on Radiological Protection (ICRP) Publication 103 (Valentin 2007) and the benchmarks contained within are considered adequate for the purposes of this EIS. The reasons for selecting representative receptors for the risk analysis in support of this *TC & WM EIS* are given in Appendix P, Sections P.2.1, P.2.1.2, P.3.1.1.2, and P.3.2.1.2. Selected receptors are relevant to Hanford because they occur there, including species that are important to native cultures. In addition, some *TC & WM EIS* receptors were used in previous risk assessments at Hanford, such as the *Columbia River Comprehensive Impact Assessment*, and other EISs. The advantages of using Hanford-specific receptors were judged to exceed potential benefits of using international reference receptors, such as those in ICRP Publication 108, because those benefits do not contribute to the primary goals of the ecological risk analysis for this *TC & WM EIS*, namely the unbiased comparison of alternatives.



**Commentor No. 10 (cont'd): Joseph John Bevelacqua**

I look forward to receiving the revised, final EIS.

Regards,



Dr. Joseph John Bevelacqua, President  
Bevelacqua Resources

JJB/tms

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## Commentor No. 10 (cont'd): Joseph John Bevelacqua

*Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington*

establishes its own set of radiation standards. The various exposure limits set by DOE and EPA for radiation workers and members of the public are given in Table K-1.

**Table K-1. Exposure Limits for Members of the Public and Radiation Workers**

Guidance Criteria (Organization)	Public Exposure Limits at the Site Boundary	Worker Exposure Limits
10 CFR 835 (DOE)	—	5,000 millirem per year <sup>a</sup>
10 CFR 835.1002 (DOE)	—	1,000 millirem per year <sup>b</sup>
DOE Order 5400.5 (DOE) <sup>c</sup>	10 millirem per year (all air pathways) 4 millirem per year (drinking-water pathways) 100 millirem per year (all pathways)	—
40 CFR 61.90–61.97 (EPA)	10 millirem per year (all air pathways)	—
40 CFR 141 (EPA)	4 millirem per year (drinking-water pathways)	—

<sup>a</sup> Although this measurement is a limit (or level) that is enforced by DOE, worker doses must be managed in accordance with as low as is reasonably achievable principles. Refer to footnote b.

<sup>b</sup> This measurement is a control level. It was established by DOE to assist in achieving its goal to maintain radiological doses as low as is reasonably achievable. DOE recommends that facilities adopt a more-limiting 500 millirem per year Administrative Control Level (DOE Standard 1098-99). Reasonable attempts have to be made by the site to maintain individual worker doses below these levels.

<sup>c</sup> Derived from or consistent with 40 CFR 61.90–61.97; 40 CFR 141; and 10 CFR 20.

Key: CFR=Code of Federal Regulations; DOE=U.S. Department of Energy; EPA=U.S. Environmental Protection Agency.

### K.1.1.3 Health Effects due to Exposure to Radiation

To provide the background for discussions of impacts, this section explains the basic concepts used in the evaluation of radiation effects. Radiation can cause a variety of damaging health effects in people. The most significant effects are induced cancer fatalities, called “latent cancer fatalities” (LCFs) because the onset of cancer may take many years to develop after the radiation dose is received. In this TC & WMEIS, LCFs are used to measure the estimated risk due to radiation exposure.

The National Research Council’s BEIR Committee has prepared a series of reports to advise the Federal Government on the health consequences of radiation exposure. Based on its 1990 report, *Health Effects of Exposure to Low Levels of Ionizing Radiation, BEIR V* (National Research Council 1990), the former Committee on Interagency Radiation Research and Policy Coordination recommended cancer risk factors of 0.0005 per rem for the public and 0.0004 per rem for working-age populations (CIRRPC 1992). In 2002, the Interagency Steering Committee on Radiation Standards (ISCORS) recommended that Federal agencies use conversion factors of 0.0006 fatal cancers per rem for mortality and 0.0008 cancers per rem for morbidity when making qualitative or semiquantitative estimates of risk from radiation exposure to members of the general public. No separate values were recommended for workers. The DOE Office of Environmental and Policy Guidance subsequently recommended that DOE personnel and contractors use the risk factors recommended by ISCORS, stating that, for most purposes, the value for the general population (0.0006 fatal cancers per rem) could be used for both workers and members of the public in National Environmental Policy Act (NEPA) analyses (DOE 2003).

Recent publications by both the BEIR Committee and the ICRP support the continued use of the ISCORS-recommended risk values. *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2* (National Research Council 2006) reported fatal cancer risk factors of 0.00048 per rem for males and 0.00066 per rem for females in a population with an age distribution similar to that of the entire U.S. population (average value of 0.00057 per rem for a population with equal numbers of males and females). ICRP Publication 103 (Valentin 2007) recommends nominal cancer risk coefficients of 0.00041 and 0.00055 per rem for adults and the general population, respectively, and estimates the risk from heritable effects to be about 3 to 4 percent of the nominal fatal cancer risk (see Table K-2).

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**Commentor No. 10 (cont'd): Joseph John Bevelacqua**

*Appendix K • Human Health Risk Analysis*

**Table K-2. Nominal Health Risk Estimators Associated with Exposure to Ionizing Radiation<sup>a</sup>**

Exposed Population	Cancer <sup>b</sup>	Genetic Effects	Total
Worker (Adult) <sup>c</sup>	0.00041	0.00001	0.00042
Whole	0.00055	0.00002	0.00057

<sup>a</sup> Risk per rem (individual dose) or person-rem (population dose). For individual doses equal to or greater than 20 rem, the health risk estimators are multiplied by 2.

<sup>b</sup> Risk of all cancers, adjusted for lethality and quality-of-life impacts.

<sup>c</sup> Ages 18–64 years.

Source: Valentin 2007, Table A.4.4.

Accordingly, a risk factor of 0.0006 LCFs per rem was used in this *TC & WM EIS* to estimate risk due to radiation doses from normal operations and accidents. For high individual doses (greater than or equal to 20 rem), the health risk factor was multiplied by 2. In addition, nuclide-specific risk coefficients were developed using techniques accounting for gender, age, and exposure pathway (Eckerman et al. 1999). These coefficients, documented in the Health Effects Assessment Summary Tables database, were adopted for use in evaluation of impacts occurring in the long-term period following stabilization or closure of the high-level radioactive waste (HLW) tanks.

Using the risk factors discussed above, a calculated dose can be used to provide an estimate of the risk of an LCF. For example, if each member of a population of 100,000 people were exposed to a one-time dose of 100 millirem (0.1 rem), the collective dose would be 10,000 person-rem (100,000 persons times 0.1 rem). Using the risk factor of 0.0006 LCFs per person-rem, this collective dose is expected to cause 6 additional LCFs in this population (10,000 person-rem times 0.0006 LCFs per person-rem).

Sometimes, calculations of the number of LCFs do not yield whole numbers, and may yield a number less than 1. For example, if each individual of a population of 100,000 people were to receive an annual dose of 1 millirem (0.001 rem), the collective dose would be 100 person-rem, and the corresponding risk of an LCF would be 0.06 (100,000 persons times 0.001 rem times 0.0006 LCFs per person-rem). A fractional result should be interpreted as a statistical estimate. That is, 0.06 is the average number of LCFs expected if many groups of 100,000 people were to experience the same radiation exposure situation. For most groups, no LCFs would occur; in a few groups, 1 LCF would occur; in a very small number of groups, 2 or more LCFs would occur. The average number of LCFs over all of the groups would be 0.06 (just like the average of 0, 0, 0, and 1 is 1 divided by 4, or 0.25). In the preceding example, the most likely outcome for any single group would be 0 LCFs. In this *TC & WM EIS*, LCFs calculated for a population are presented as both the rounded whole number, representing the most likely outcome for that population, and the calculated statistical estimate of risk, presented in parentheses.

The numerical estimates of LCFs presented in this environmental impact statement (EIS) were obtained using a linear extrapolation from the nominal risk estimated for lifetime total cancer mortality that results from a dose of 0.1 gray (10 rad). Other methods of extrapolation to the low-dose region could yield higher or lower numerical estimates of LCFs. Studies of human populations exposed to low doses are inadequate to demonstrate the actual level of risk. There is scientific uncertainty about cancer risk in the low-dose region below the range of epidemiologic observation. However, comprehensive review of available biological and biophysical data supports a “linear-no-threshold” risk model—in which the risk of cancer proceeds in a linear fashion at lower doses without a threshold—and that the smallest dose has the potential to cause a small increase in risk to humans (National Research Council 2006).

**K.1.2 Chemicals**

The reprocessing of nuclear fuels, the manufacture of nuclear materials, and the processing of fuel cycle waste entail the use of chemicals. Some of the more-hazardous chemicals could pose risks to human health, even to the point of being fatal, if they are accidentally released to the environment or if they come

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**Commentor No. 11: Nancy Kroening**

**From:** nancy newkirk [greeniefrost@yahoo.com]  
**Sent:** Friday, November 20, 2009 2:34 PM  
**To:** tc&wmeis@saic.com  
**Subject:** Hanford Tank Waste

Madeleine Cadbury Brown  
Washington State Department of Ecology  
Nuclear Waste Program  
(xxx) xxx-xxxx  
madeleine.brown@ecy.wa.gov

I am commenting on the Hanford change EIS. I support the comments of the Washington State Department of Ecology's comments. They sound very reasonable.

I am very concerned about the numbers of changes each year on the cleanup. Some of these changes are positive and will speed up cleanup. However, when changes slow down work and/or invite MORE waste into the Reservation, it is a big problem

The reason I am so concerned is that our grandchildren spend at least a week in Richland each year. We want cleanup to be done quickly, carefully, and with science, not politics, as the basis for decision. We want wastes to be put in solid form and stored so they will not further contaminate the land and water. We want ground water to be protected as well as air. We remain surprised that there is still so much waste to processed.

The people of Washington voted to keep new wastes out of the state. We hope this will be honored. And, we hope that the residents of Tri-Cities will be protected against exposure to radiation by being close to trucks carrying waste.

Thank you for receiving my comments.

Nancy Kroening  
123 East Calavar Road  
Phoenix AZ 85022  
greeniefrost@yahoo.com

11-1

11-2

11-1  
cont'd  
11-3

11-1 Although beyond the scope of this *TC & WM EIS*, ongoing Hanford cleanup activities are of high priority to DOE and are conducted in accordance with the TPA. This agreement specifies milestones and schedules for cleanup of all parts of Hanford. DOE is fully committed to honoring this agreement.

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

11-2 In general, this *TC & WM EIS* does not include groundwater remediation activity as part of the proposed actions evaluated. However, the cumulative impacts analysis in this EIS does consider the effects of reasonably foreseeable Hanford remedial activities (see Chapter 6 and Appendix U). DOE is implementing an extensive, ongoing cleanup program at Hanford, as required under RCRA, CERCLA, and/or the TPA, a legal agreement between DOE, Ecology, and EPA. The TPA identifies cleanup actions and schedules, called milestones. The TPA agencies completed negotiations on several Hanford cleanup projects, including the establishment of 29 additional and/or accelerated groundwater and Columbia River protection milestones and target dates.

Each Tank Closure alternative would produce a solid primary-waste form.

11-3 The transportation of radioactive materials and waste, both coming to and leaving Hanford, must comply with the U.S. Department of Transportation (DOT) and NRC regulations that promote the protection of human health and the environment. This includes requiring the use of certified packaging that minimizes the radiation dose rate outside the transportation package. As indicated in the *TC & WM EIS* Summary, Section S.5.3; Chapter 2, Section 2.8.3.10; and Chapter 4, Section 4.3.12, it is unlikely that transportation of radioactive waste would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

*Commentor Number 12 is not included in this Comment-Response Document  
because it is a duplicate of Commentor Number 10.*

**Commentor No. 13: Gerry Pollet, Executive Director,  
Heart of America Northwest**

TO: TPA Agency Involvement Officers; DOE-ORP Manager Shirley Olinger; TCWMEIS Manager Mary Beth Burandt; Ecology Nuclear Waste Program Manager Jane Hedges; Melissa Nielson, Director, USDOE-HQ EM Office of Public and Intergovernmental Accountability

FR: Gerry Pollet, Director, Heart of America Northwest ([gerry@hoanw.org](mailto:gerry@hoanw.org)) / 206-382-1014 / xxx-xxx-xxxx cell)

Date: December 28, 2009

RE: Collaborative Planning Needed for Public Hearings on the Tank Closure and Waste Management EIS --- Date and location setting for hearings needs collaboration and needs to comply with 45 day notice provision of TPA Community Relations Plan --- Goals for public involvement not identified

CC: Ken Niles, State of Oregon Dept. of Energy; Hanford Advisory Board Public Involvement Committee (PIC); Hanford Public Interest Network organizations

The Tank Closure Waste Management Environmental Impact Statement (TCWMEIS) has been identified and anticipated for years as the most extensive environmental review for the Hanford site. Proposals for the most debated and long awaited decisions affecting every aspect of Hanford Clean-Up, are formally dependent upon the TCWMEIS. The EIS has been anticipated – and delayed for years. During this time, we have repeatedly urged that there be a dialogue regarding the strategic goals for public involvement to be served by the TCWMEIS for a strategic Public involvement plan for Hanford Clean-Up. There has been no effort to identify public involvement goals for the TCWMEIS and to ensure that it leaves a lasting legacy of an informed public for upcoming decisions.

We have repeatedly asked for collaborative planning for public hearings on the TCWMEIS. This has not happened. Time is running out and a collaborative planning effort is needed ASAP, starting with a conference call to identify:

- Hearing location and dates with 45 days advance notice;
- Pre-hearing workshops and information needs for various segments of the public in different areas of the region.

The Tri-Party Agreement (TPA) Public Involvement Plan calls for collaboration in planning the public hearings and involvement effort with a 45 day advance notice of the hearing dates and locations. For the TCWMEIS, this 45 day period is vital given the need to adequately plan and encourage public involvement, to allow ample time for drafting, publishing and mailing materials; and, for a comment period of this great importance, huge scope (covering scores of major decisions) and complexity – to allow time to plan and schedule pre-hearing workshops to give the public meaningful opportunity to comment.

At the December 15 workshop in Richland for the HAB, I was disturbed that there was no discussion of public involvement planning. At the end of the workshop, I asked EIS Manager Mary Beth Burandt and TPA PIO staff to set up such a discussion. Ms. Burandt informed me that USDOE management was setting dates for February – with no public or other input.

This is not acceptable.

13-1

DOE's public involvement process for this EIS was based on CEQ and DOE regulations for implementing NEPA; DOE Order 451.1B requirements; and applicable DOE NEPA guidance (available at <http://energy.gov/nepa>). While DOE is not bound by the terms of the TPA Public Involvement Plan in conducting NEPA processes at Hanford, DOE nevertheless considered the TPA Public Involvement Plan in developing the public involvement plan for the *Draft TC & WM EIS* jointly with Ecology as a cooperating agency.

In response to the commentor's request for more-extensive collaboration in the *TC & WM EIS* public hearing planning process, as well as DOE's desire to communicate with and involve the public in this process, a Hanford Advisory Board (HAB) workshop was held on December 15, 2009, and DOE stakeholder teleconferences were held on December 30, 2009, and January 5 and 6, 2010. Public hearing dates and locations were identified and discussed, and it was agreed that additional public hearings would be held in Spokane, Washington, and La Grande and Eugene, Oregon. Pre-hearing workshops were also discussed. In addition, DOE held a 1-hour open house prior to each public hearing to allow the public to meet informally with members of the *TC & WM EIS* team, ask questions, and learn more about this EIS. Informative factsheets were provided at these open houses.

A suggestion was made during one of the teleconferences to move the planned January 26, 2010, public hearing in Richland, Washington, to meet the 30- to 45-day notification goal under the TPA Community Relations Plan (the January/February timeframe for public hearings was announced at the December 15, 2009, HAB meeting). During the call, the Hanford communities indicated their support for the January 26 public hearing date and their opposition to changing it. In response to a request that the Seattle public hearing not be scheduled for a week when schools were out, the hearing date was moved to March 8, 2010.

Only one hearing location, in Portland, had paid parking available. However, parking fees were waived by the hotel for hearing attendees, and DOE held hearings in locations that encouraged university student attendance and participation, such as Eastern Oregon University.

DOE mailed a copy of the draft EIS via Federal Express to every individual who requested one. For those individuals who requested a printed copy of the Summary, a CD containing the complete draft EIS and a Reader's Guide also

13-1

**Commentor No. 13 (cont'd): Gerry Pollet, Executive Director,  
Heart of America Northwest**

If the TCWMEIS is to be used for TPA and state RCRA permit decisions, it must meet TPA public involvement standards. Regardless of legal requirements, we expect that USDOE would make every effort to meet the minimum expectations of the TPA Community Relations Plan and engage stakeholders and the regulators in a collaborative effort to plan for meaningful public involvement in the TCWMEIS comment period, starting with a collaborative effort to identify suitable locations and dates with 45 day of advance notice for the hearings.

We ask that USDOE stop attempting to schedule the hearings without collaboration and discussion. Please set up a conference call with stakeholder groups from around the region and members of the HAB PIC to start the collaborative process envisioned in the TPA Community Relations Plan.

Secondly, ensure that there will be a full 45 days of notice for the location and time of hearings.

Thirdly, use the HAB PIC to plan for a discussion setting strategic goals and objectives for public involvement in the TCWMEIS, including, for example, how information regarding the identified impacts from proposed actions and alternatives will be communicated both for public comment on the TCWMEIS and for long-term use of this information in enabling the public to understand and comment on future proposed actions which will rely on the TCWMEIS (e.g., the decisions on tank closure, TPA and Central Plateau Strategy decisions; the Hanford RCRA permit...). This effort should include pre-hearing workshops in various locations.<sup>1</sup>

We propose a conference call with citizen groups, PIC and TPA PIOs, States and Tribes during the first week of January to discuss how many hearings will be held, where they will be held (e.g., including Spokane and Eastern Oregon)<sup>2</sup> and when; to be followed by discussions regarding the information needed to be given to the public and whether USDOE will commit to pre-hearing workshops, and whether the agencies will prepare focus sheets on proposed actions and identified impacts.

Forty five days of notice will mean that the hearings – if identified collaboratively by January 11<sup>th</sup>, would start the hearings in late February.<sup>3</sup> If this seems like an extended period of time, we point out that USDOE had years of delay before issuing the EIS<sup>4</sup>; and, months during which we sought to have this discussion to no avail. After spending millions on the TCWMEIS, it is not too much to ask to have USDOE actually plan collaboratively for public hearings and how the public would be informed to offer comment.

We urge that the collaborative process begin ASAP to select dates and locations of hearings and identify how public involvement goals for the TCWMEIS will be met.

<sup>1</sup> There was disappointment with the one workshop held by USDOE on December 15, for which there was no apparent use of input for the agenda, no discussion of impacts, and no discussion of public involvement.

<sup>2</sup> In addition to hearings in locations used for scoping (Portland, Hood River, Tri-Cities, Seattle), we believe there should be a hearing in Spokane and on the CTUIR Reservation or Pendleton or LaGrande, OR along the proposed transport route for USDOE's preferred alternative to utilize Hanford as a national radioactive waste dump.

<sup>3</sup> E.g., we would ask that hearings not be slated for the week schools are out in Seattle in February. USDOE recently was in charge of selecting venues for TPA change hearings, and did so without the collaboration required. This led to hearings where the public had to pay for parking, overcrowded venues and failure to use lower cost meeting spaces that would have allowed increased attendance by university students (after the agencies identified increased accessibility for university students as an objective).

<sup>4</sup> People who requested full printed copies of the EIS have not received them. Publication and availability of the CD version is not a substitute for the full printed version for people or organizations seeking in-depth review. Ironically, USDOE has prepared a "Readers' Guide" to the EIS which is available on the CD, but was not mailed as a readable document to people who asked for the Summary.

***13-1  
cont'd***

was attached to the inside cover. The Reader's Guide was developed to assist the reader in understanding and navigating through the full *Draft TC & WM EIS*, not the Summary.

**Commentor No. 14: Edward Fredenburg,  
Washington State Department of Ecology**

**From:** Fredenburg, Edward (ECY) [mailto:Efre461@ecy.wa.gov]  
**Sent:** Wednesday, December 09, 2009 12:23 PM  
**To:** Burandt, Mary E  
**Subject:** errors in EIS

Mary Beth, a couple of errors for SAIC to fix in the final:

Page 5-302, Section 5.1.11—last sentence refers to Section 5.1.3. Correct reference is 5.1.1.3.

|| 14-1

14-1

The reference to Chapter 5, Section 5.1.1.3, has been corrected.

Page 2-100, Figure 2-56: New DSTs are shown in Figure. Paragraph on Storage on page 2-99 says no new DSTs would be required.

|| 14-2

14-2

The figure illustrating the primary components of Tank Closure Alternative 6B has been revised to indicate that no new double-shell tanks (DSTs) would be required.



**Commentor No. 15: Ken Niles, Assistant Director,  
Oregon Department of Energy**

**From:** Ken Niles [mailto:ken.niles@state.or.us]  
**Sent:** Monday, January 04, 2010 1:53 PM  
**To:** Burandt, Mary E; Olinger, Shirley J  
**Cc:** Gamache, Lori M; Olds, Theodore E (Erik); Lutz, Karen  
**Subject:** TC & WM EIS - Preliminary Comments  
**Attachments:** TC&WM-EIS-OR\_Alternative.pdf

Attached are some preliminary comments on the Tank Closure and Waste Management draft EIS, focused on the tank waste treatment/closure alternatives.

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**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,  
Oregon Department of Energy**



**Oregon**  
Theodore R. Kulongoski, Governor



OREGON  
DEPARTMENT OF  
ENERGY

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www.Oregon.gov/ENERGY

January 4, 2010

Mary Beth Burandt, Document Manager  
Office of River Protection  
U.S. Department of Energy  
Post Office Box 1178  
Richland, WA 99352

Dear Ms. Burandt:

The Oregon Department of Energy has completed a preliminary analysis of the draft Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS). In our initial review, we have focused in large part on the 11 Tank Closure alternatives that are analyzed in the EIS. We reviewed each against the following criteria:

- Long-term protectiveness of the Columbia River, primarily associated with preventing additional migration of contaminants into Hanford's groundwater
- Compliance with the Tri-Party Agreement; meeting schedules for waste treatment and requirements for quality of the final waste form
- Permanence of the actions (for example, durability of the waste form so as to prevent future releases)
- Minimizing natural resource injury liability
- Protectiveness of human health and the environment

While the various proposed alternatives provide useful information by analyzing and comparing potential impacts and differences among the alternatives, to our concern we found that perhaps only one of the Tank Closure alternatives satisfied all of these criteria. Many failed most or all of the criteria (see Attachment 1).

The U.S. Department of Energy's (DOE) recent decision not to pursue treating and sending some waste to the Waste Isolation Pilot Plant eliminates alternatives 3A, 3B, 3C, 4 and 5. Notwithstanding that decision, each of these alternatives, along with five of the remaining six alternatives, had one or more fatal flaws that prevented each from meeting our criteria.

There are elements scattered within the range of many of the alternatives which, if combined in a new alternative, would likely provide a preferable long-term approach for

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Regarding the adequacy of the Tank Closure alternatives analyzed in the *Draft TC & WM EIS* and the suggestion that the proposal put forth by the Oregon Department of Energy be evaluated as a distinct alternative in this EIS, DOE has determined that implementation of such an alternative would be technically infeasible as defined. Accordingly, the Oregon proposal cannot be considered a reasonable alternative and was not analyzed in detail in this *TC & WM EIS*. For a more comprehensive discussion of this issue, see Section 2.6 of this CRD.

**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,  
Oregon Department of Energy**

successfully immobilizing Hanford's tank waste, closing the tank farms, and protecting the public and the environment.

Therefore, we propose and strongly encourage DOE to analyze the potential impacts of the following new alternative:

**Alternative 7 – (the Oregon Proposal)**

Tank Waste Storage. Continue current waste management operations using existing tank storage facilities. No new double-shell tanks would be required, *unless* there is a delay in getting the Waste Treatment Plant (WTP) operational. New Waste Receiver Facility tanks would be constructed. These tanks should be sized so that all necessary waste transfers will be possible, and to ease retrieval operations.

Tank Waste Retrieval. Retrieve a *minimum* 99 percent of the waste from each of the tanks. Determine on a tank-by-tank basis whether a final chemical wash, mechanical removal step, or other additional retrieval is necessary.

Tank Waste Treatment. Construct and operate the existing WTP as currently configured (two high-level waste melters and two low-activity waste [LAW] melters). Supplement the existing WTP by expanding LAW vitrification capacity to the extent necessary to complete LAW treatment no later than 2040. Do not use supplemental technologies such as bulk vitrification, cast stone or steam reforming. Pre-treat all waste streams routed to the WTP, and include technetium 99 removal in the pre-treatment process so that technetium is routed to the high-level waste melter. Assume that no waste will qualify as transuranic for disposal at the Waste Isolation Pilot Plant, but programmatically continue to pursue that as an option for the near future for a limited amount of waste.

As a sub-option, DOE should analyze the value of using iron phosphate glass in the second LAW treatment facility to determine whether that would provide useful flexibility in treating some waste streams and also whether it would result in a more durable glass form for those waste streams.

DOE should also analyze the impacts and benefits of using fractional crystallization to remove the bulk of the non-radioactive waste from the tank waste streams, in order to potentially reduce the volume of the glass waste form destined for the deep repository. The separated sodium wastes should be treated to destroy any RCRA hazards and to produce a waste form meeting the land disposal restrictions under RCRA, the Atomic Energy Act and Nuclear Regulatory Commission requirements for near-surface land disposal of mildly radioactive wastes.

Cesium and Strontium Capsules. Do not include the cesium and strontium capsules in the WTP waste stream. Instead, convert from pool storage to dry

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**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,  
Oregon Department of Energy**

storage and continue to pursue ultimate disposal into a geologic repository in a form suitable to meet the waste acceptance criteria for the facility as an alternative secondary waste form.

Tank Waste Disposal. Store immobilized high-level waste canisters on site in interim storage facilities until a national disposal facility is available. Assuming shallow burial of the immobilized LAW will be allowed, dispose of vitrified LAW on site. Since vitrified LAW may remain classified as high-level waste, flexibility will be required for planning for its permanent disposal.

Tank Farm Closure. Characterize leaked tank wastes in and beneath the tank farms, along with waste trapped between the steel and concrete tank structures and in pipelines and ancillary equipment. Use that information to make a risk-based decision on which tanks, pipelines and ancillary equipment have leaked and whether contamination may have spread beneath non-leaking tanks. As appropriate, exhume tanks to provide access to contaminated soils. This may include leaking tanks, adjacent (clean) tanks in contact with contaminated soil, and possibly some additional clean tanks that block access to heavily contaminated soil. Sample and characterize the below-tank contaminated soils and remediate soils as deeply as necessary. Build and operate a facility to treat contaminated soils as described in Alternatives 6A and 6B. Replace removed, contaminated material with clean soil from onsite sources.

After waste retrieval of at least 99 percent from tanks, pipelines and ancillary equipment, fill remaining (clean) tanks and ancillary equipment with a highly durable fill material to immobilize the residual waste, prevent future tank subsidence, and discourage intruder access. Close these remaining tanks using a landfill barrier designed to ensure long term permanence and isolation of the remaining wastes. It may be necessary first to remove some soil and ancillary equipment if there have been leaks from pipelines and other equipment.

Dispose of treated contaminated soils, tank shells and ancillary equipment on site in a new disposal facility. Monitor the site using post-closure care.

Tank Farm Cribs and Trenches Closure. As single-shell tank farm closure operations are completed, sample and characterize the associated cribs and trenches (ditches) disposal sites. Remove-treat-dispose of the contaminated materials and soils that exceed protectiveness criteria. Close the cribs and trenches (ditches) using a landfill barrier.

We won't know whether the proposed Alternative 7 will meet the criteria that we have identified until and unless DOE analyzes each of these actions individually and collectively. We hope that DOE will agree to conduct that analysis.

We will provide additional written comments prior to the comment deadline that will address additional details related to tank waste treatment and tank closure. We will

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cont'd**

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**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,**  
**Oregon Department of Energy**

also provide comments on the Waste Management and Fast Flux Test Facility alternatives.

If you have questions or comments on Oregon's proposed alternative, please contact me at 503-378-4906.

Sincerely,



Ken Niles  
Assistant Director

c.c. Jane Hedges, Washington Department of Ecology  
Dennis Faulk, U.S. Environmental Protection Agency  
Shirley Olinger, U.S. Department of Energy Office of River Protection  
Dave Brockman, U.S. Department of Energy Richland Office  
Stuart Harris, Confederated Tribes of the Umatilla Indian Reservation  
Gabriel Bohnnee, Nez Perce Tribe  
Russell Jim, Yakama Indian Nation  
Oregon Hanford Cleanup Board  
Hanford Advisory Board  
Hanford Natural Resource Trustee Council

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**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,  
Oregon Department of Energy**

**ATTACHMENT 1**

**Why Existing Tank Closure Alternatives Are Not Acceptable**

**Alternative 1 – No Action.** Leaving the waste in Hanford's tanks for 100 years and canceling the planned waste treatment program would result in wide-spread environmental contamination. Moreover, the "No Action" alternative need not be a stop action alternative. It can and usually is presumed to continue the actions in progress as the basis for which further actions are contrasted.

**Alternative 1 is not protective of the Columbia River; does not comply with the Tri-Party Agreement; there are no actions taken that would have a positive permanent affect; natural resource injury liabilities are not minimized; and this alternative is not protective of human health and the environment.**

**Alternative 2A – Existing WTP Vitrification; No Closure.** Treatment capacity must be expanded beyond the 2 + 2 configuration of the WTP in order to accomplish immobilization of Hanford's tank waste in a somewhat reasonable time frame. Treating waste until 2093 would likely result in extensive tank leaks during that period and additional wide-spread environmental contamination. Eventually ceasing administrative control of the tank farms without closure would also likely have significant adverse environmental impacts. Prolonging the treatment mission so as to have to replace the WTP, the double-shell tanks, and other major facilities is not reasonable. This alternative also excludes technetium 99 from pre-treatment. As technetium is one of the primary radionuclides in terms of projected long-term impacts, we believe a robust system must be in place to ensure that technetium 99 is diverted to the high-level vitrification waste stream. Alternative 2A is a step backward from the existing plans.

**Alternative 2A is not protective of the Columbia River; does not comply with the Tri-Party Agreement schedules; natural resource injury liabilities are not minimized; and this alternative is not protective of human health and the environment.**

**Alternative 2B – Expanded WTP Vitrification; Landfill Closure.** Our major objection with this alternative is closing the entire tank farm system using a landfill barrier. That does nothing to deal with leaked waste beneath the tanks farms that is currently in the vadose zone – much of which will likely eventually reach the groundwater and potentially the Columbia River. This alternative does include removing soil and tank infrastructure down to 15 feet from two tank farms. We believe this is a concept that should be expanded to include other tanks farms, but the 15 foot limit does not adequately address contamination existing at greater depth in many if not all of the single-shell tank farms. This alternative does include technetium 99 removal in the pre-

15-2

Tank Closure Alternative 1 (No Action) -- DOE developed the No Action Alternative consistent with CEQ guidance. As described in CEQ guidance "Forty Most Asked Questions Concerning NEPA Regulations" (46 FR 18026), there are two types of No Action Alternatives allowed; one case where work is stopped and impacts are evaluated, and another case where ongoing activities are evaluated as a "no change" and continuation of the present course of action. In 2003, during scoping of the "Tank Closure EIS," the No Action Alternative at that time reflected the implementation of the *TWRS EIS* ROD. Based on comments received during scoping in 2003, an additional alternative was added that, also consistent with CEQ guidance, reflected that work at WTP would end and the waste would not be treated. This alternative is the current Tank Closure No Action Alternative and the present course of action (i.e., implementation of the *TWRS EIS* ROD) became Tank Closure Alternative 2A. See Chapter 1, Section 1.6.2.2, Issues Identified During the "Tank Closure EIS" Scoping Process, for more information on changes made as a result of scoping.

Tank Closure Alternative 2A -- Since 2003, one of the key treatment questions related to WTP treatment has been associated with the treatment timeframe. As explained above, Tank Closure Alternative 2A retains implementation of the *TWRS EIS* ROD to address the current vitrification capacity presently under construction. Alternative 2B was developed to address an expansion of LAW capacity for the existing WTP. One of the key differences between Alternative 2A and 2B with respect to treatment is for DOE to evaluate the impacts of shortening the mission timeframe from 2093 to 2043 and resource areas impacted by this difference. See Chapter 2, Section 2.5.2.2.1, Tank Closure Alternative 2A: Existing WTP Vitrification; No Closure and Section 2.5.2.2.2, Tank Closure Alternative 2B: Expanded WTP Vitrification; Landfill Closure, for more-detailed information on the specific aspects of the alternatives.

Tank Closure Alternative 2B -- One aspect evaluated between Tank Closure Alternatives 2A and 2B is technetium-99 removal in the WTP, which is a pretreatment activity that separates technetium-99 and sends it for immobilization into IHLW glass. Under Tank Closure Alternative 2A, the technetium-99 removal is included, whereas under Alternative 2B, it is not. In comparing the estimates of impacts at the IDF-East disposal barrier under the Waste Management alternative that includes Tank Closure Alternative 2A waste with those under Tank Closure Alternative 2B, it indicates that ILAW glass has similar potential impacts, both short- and long-term, to ILAW glass without technetium-99. The analysis further indicates that removal of technetium-99 and its disposal

15-2

**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,  
Oregon Department of Energy**

treatment process, which would help get one of the longer-lived radionuclides into the high-level glass.

***Alternative 2B is not protective of the Columbia River; natural resource injury liabilities are not minimized; and this alternative is not protective of human health and the environment.***

**Alternative 3A – Existing WTP Vitrification with Supplemental Treatment (Bulk Vitrification); Landfill Closure.**

**Alternative 3B – Existing WTP Vitrification with Supplemental Treatment (Cast Stone); Landfill Closure.**

**Alternative 3C – Existing WTP Vitrification with Supplemental Treatment (Steam Reforming); Landfill Closure.**

None of these supplemental treatment technologies are demonstrated to be effective at safely immobilizing the waste once disposed in Hanford's soils. Bulk vitrification has been demonstrated to not meet the "good as glass" criteria for the final waste form. Cast stone as a waste form is greatly inferior to bulk vitrified waste. Steam reforming as a waste form is greatly inferior to bulk vitrified waste and cast stone. Two of the three alternatives also exclude technetium 99 from pre-treatment. All three of these options have complete landfill closure of the single-shell tank farms, which we have already indicated is not protective. DOE has also ruled out treating and sending some waste to the Waste Isolation Pilot Plant, which effectively eliminates these alternatives, as they were presented in the draft EIS, from further consideration.

***Alternatives 3A, 3B, and 3C are not protective of the Columbia River; supplemental technologies are not protective because the waste form will not sufficiently hold the waste over time (fails the permanence criteria) and does not meet Tri-Party Agreement requirements for the quality of the final waste form; natural resource injury liabilities are not minimized; and this alternative is not protective of human health and the environment.***

**Alternative 4 – Existing WTP Vitrification with Supplemental Treatment Technologies; Selective Clean Closure/Landfill Closure.** This alternative calls for supplementing the WTP with a combination of cast stone and bulk vitrification, which we indicated above is not a protective form of treatment. This alternative also excludes technetium 99 from pre-treatment. The closure combination of mixing selective clean closure with landfill closure is the most reasonable closure alternative – although it would need to be based on actual conditions in the vadose zone within and beneath the various tank farms. The BX and SX tank farms may or may not be appropriate for clean closure. Certainly other tank farms would need clean or partial clean closure. DOE has also ruled out treating and sending some waste to the Waste Isolation Pilot Plant.

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off site as IHLW glass would provide little reduction in the concentrations of technetium-99 compared with disposal as ILAW glass at either the Core Zone Boundary or the Columbia River nearshore. This is because the release rate of technetium-99 from ILAW glass is much lower than that from other sources, such as ETF-generated secondary waste and tank closure secondary waste from WTP operations. Thus, technetium-99 removal under Tank Closure Alternative 2B would provide little benefit.

As for the removal of soil and tank ancillary equipment, the Preferred Alternative (see Chapter 2, Section 2.12) describes how the landfill closure can be implemented. Additional sensitivity analysis has been completed in Chapter 7, Section 7.5, that evaluates soil remediation. DOE received comments on the potential impacts of future remediation activities that are in various stages of planning (which, given the inherent uncertainty, were not included in the cumulative impacts analysis). In response, DOE performed a sensitivity analysis to evaluate the potential impacts if certain remediation activities were conducted at some of the more prominent waste sites on the Central Plateau and along the river corridor. In addition, Chapter 7, Section 7.1, describes the closure process related to the tank. In this section, DOE clarifies that, following completion of the mitigation action plan and before implementing any closure actions, DOE will develop a tank farm system closure plan that will be implemented for each of the waste management areas. The State of Washington "Dangerous Waste Regulations" (WAC 173-303) implement the Hazardous Waste Management Act of 1976, as amended. These regulations provide the requirements for decisionmaking regarding the cleanup and permitting of dangerous wastes. The regulations define the state closure standards for the owners and operators of all dangerous waste facilities (WAC 173-303-610(2)) and include references to requirements for tank systems (WAC 173-303-640). Requirements for a response to a leak or spill and unfit-for-use tank systems are also described (WAC 173-303-640(7)). The regulations describe specific requirements for closure of the tank system (WAC 173-303-640(8)(a) and (b)). This part of the regulations provides a requirement for DOE to "remove or decontaminate all wastes residues, contaminated soils, and structures and equipment contaminated with waste" for the tank system. If DOE "demonstrates that not all contaminated soils can be practically removed or decontaminated," then closure is required (WAC 173-303-640(7)). The closure plan will include a preliminary performance assessment. The plan will be reviewed to ensure regulatory compliance by Ecology and presented for public comment before approval as a permit



**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,  
Oregon Department of Energy**

*Alternative 4 is not protective of the Columbia River; supplemental technologies are not acceptable because the waste form will not sufficiently hold the waste over time (fails the permanence criteria) and does not meet Tri-Party Agreement requirements for the quality of the final waste form; natural resource injury liabilities are not minimized; and this alternative is not protective of human health and the environment.*

**Alternative 5 – Expanded WTP Vitrification with Supplemental Treatment Technologies; Landfill Closure.** Tank waste retrieval to only 90 percent would leave an amount of waste within the tanks that would likely eventually cause significant adverse environmental impacts. This alternative also calls for use of cast stone and bulk vitrification, which we have already indicated would not sufficiently immobilize the waste for disposal in Hanford soils. This option also excludes technetium 99 from the pre-treatment process. We do support the idea of further exploring sulfate removal after pre-treatment to reduce the amount of vitrified low-activity waste. This alternative also includes landfill closure of the single-shell tank farms, which we have indicated is not protective. DOE has also ruled out treating and sending some waste to the Waste Isolation Pilot Plant.

*Alternative 5 is not protective of the Columbia River; supplemental technologies are not acceptable because the waste form will not sufficiently hold the waste over time (fails the permanence criteria) and does not meet Tri-Party Agreement requirements for the quality of the final waste form; natural resource injury liabilities are not minimized; and this alternative is not protective of human health and the environment.*

**Alternative 6A – All Vitrification/No Separations; Clean Closure.** The WTP is currently being constructed to include pre-treatment and LAW vitrification melters. We support pre-treatment to separate the waste streams and believe it is unnecessary to treat all the waste as high-level waste. It also would unnecessarily prolong the treatment mission to 2163, requiring eventual replacement of the double-shell tanks and construction of two replacement Waste Treatment Plants. We also believe that clean closure of all of the 149 single-shell tanks is probably not necessary.

*Alternative 6A may offer the best long-term protectiveness of the Columbia River over any of the other alternatives as all the tank waste is vitrified and disposed off-site. However, the increased time to vitrify all the wastes increases the chances of additional tank leaks during the treatment mission, which could pose an increased threat to the Columbia River and would not be protective of human health and the environment. It also does not comply with Tri-Party Agreement schedules.*

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modification to the Hanford sitewide permit. This process is described in Appendix I of the TPA. A closure plan will be submitted for each waste management area that meets the TPA compliance schedule and requirements, as well as those of the state closure standards (WAC 173-303-610(2)) and the TC & WM EIS ROD. Ecology will consider all EIS mitigation information and any additional, relevant information when developing the closure plan. As an example of the current process, the TPA has milestones for the completion of a soil investigation for Waste Management Area C (Milestone M-45-61), submittal of a closure plan (Milestone M-45-82), and completion of Waste Management Area C closure (Milestone M-45-83). DOE will complete the soil investigation to determine the nature and extent of the contamination. To inform the decision process for closure, DOE will complete a Waste Management Area C performance assessment and risk assessment. Following completion of the tank waste retrieval and data collection activities for residuals in the pipelines, ancillary equipment, and soil, the performance assessment will be revised to include all data. This revised performance assessment and closure plan will be presented for public review and comment, and the Waste Management Area C closure plan will be modified and incorporated into the Hanford sitewide permit.

Tank Closure Alternatives 3A, 3B, and 3C -- NEPA is completed early in the process and therefore information can develop during the process. Appendix E of this EIS describes the uncertainties related to all of the supplemental treatment technologies. In addition, Appendix E, Section E.1.2.3.5.1, describes the process used for the supplemental treatment technologies evaluated in this EIS.

Tank Closure Alternative 4 -- In 2003, during the scoping of the "Tank Closure EIS," Alternative 4 was included to represent selective clean closure of the BX and SX tank farms as representative tank farms with landfill closure applied to other tank farms. The rationale for selection of BX and SX is included in Appendix E, Section E.1.2.5.3. Under the treatment component of Tank Closure Alternative 4, DOE wanted to evaluate the impacts related to the implementation of more than one supplemental treatment technology (i.e., bulk vitrification and cast stone).

Tank Closure Alternative 5 -- Tank Closure Alternative 5 evaluates whether putting a more robust barrier (i.e., Hanford barrier) on the tank farms can mitigate the impact of not being able to retrieve all the waste from the tanks (i.e., 90 percent retrieval of the waste). In addition, the analysis of 90 percent removal of the tank farm waste evaluates the potential impacts if the TPA retrieval goal of 99 percent cannot be met. Similar to Tank Closure Alternative 4,



**Commentor No. 15 (cont'd): Ken Niles, Assistant Director,  
Oregon Department of Energy**

**Alternative 6B – All Vitrification with Separations; Clean Closure.** This alternative may meet all of our criteria. It would depend in large part on the ultimate disposition of the immobilized LAW canisters. Since there would not be pre-treatment to ensure that the technetium 99 ended up in the immobilized high-level glass, if the immobilized LAW were to end up in shallow burial at Hanford, the disposal environment may not sufficiently contain the technetium. This could eventually lead to spread of technetium into Hanford's groundwater. In addition, this alternative presumes landfill barrier of the cribs and trenches, which may not be protective. This alternative also proposes complete clean closure of all of the 149 single-shell tanks, which is probably not necessary.

**Alternative 6B may meet all of our criteria, but not if the technetium ends up in shallow burial at Hanford.**

**Alternative 6C – All Vitrification with Separations; Landfill Closure.** This alternative includes landfill closure of the single-shell tank farms, which we have indicated is not protective.

**Alternative 6C is not protective of the Columbia River and is not protective of human health and the environment.**

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DOE chose to evaluate a suite of supplemental technologies for potential implementation. DOE also believes evaluation of technologies like sulfate removal, which reduces the amount of ILAW glass produced in the WTP and, therefore, allows earlier completion of treatment of tank waste, is a reasonable alternative and meets the agencies' objectives.

Tank Closure Alternative 6A – DOE notes the commentor's support for pretreatment of the waste into the HLW and LAW fractions.

Tank Closure Alternative 6B – DOE notes the commentor's support for Tank Closure Alternative 6B.

Tank Closure Alternative 6C – DOE notes the commentor's opposition to Tank Closure Alternative 6C.

**Commentor No. 16: Valerie Shubert**

**From:** Valerie Shubert [treraia@gmail.com]  
**Sent:** Thursday, January 21, 2010 5:31 AM  
**To:** tc&wmeis@saic.com  
**Subject:** Draft TC&WM EIS Comments; pt 1

This is very preliminary, since I'm still slogging through the EIS, but I wanted to get started while things were still fresh in my mind.

First, I don't think the comment period is long enough. This is a large document, and there's not time to read the whole thing with attention.

Second, I note that there's an assumption that workers will be working the same type of schedules during clean closure operations as they would be during landfill closure operations. I think it would be worth considering hiring more people, and setting up the same sort of team planning and choreography that NASA uses for spacewalks. In this way, individuals would be exposed for less time, while their expertise and experience could be shared with others.

Third, as regards vitrification: It should be noted that glass is a supercooled liquid, and over time it flows. In glass windows over a hundred years old, the glass at the bottom is measurably thicker than the glass at the top. When glass contains materials which will be dangerous for thousands of years, there needs to be some facility for (at least), turning the things over every hundred years or so, lest the thickening at the bottom become severe enough that it may break out of any containers.

There will be more comments later, but this is the beginning. Please send any reply to this email address, as my SCN address has limited storage space.

Valerie Shubert  
 1420 Western, #409  
 Seattle, WA 98101

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DOE extended the *Draft TC & WM EIS* public comment period for another 45 days, for a total comment period of 185 days.

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Appendix K provides information regarding the assumptions for determining worker exposures and notes that they are based on full-time equivalent workers; the actual number of workers engaged to implement an action could be different. As stated in Appendix K, Section K.2, DOE and its contractors would implement controls to limit the exposure of individual workers for all activities in accordance with regulations and guidance (10 CFR 835; DOE Standard 1098-2008). Site procedures and job control plans would incorporate the type of planning and information sharing alluded to in the comment to maintain radiation doses as low as is reasonably achievable (ALARA), using techniques such as planning work to reduce time of exposure, increasing the number of workers, using shielding, and employing remote operations. Chapter 7, Section 7.1.10, contains additional information regarding methods to protect workers.

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Vitrification of radioactive waste into glass is an attractive and technically proven option because it atomistically bonds the species in a solid glassy matrix. Because radioactive constituents are bonded within the glass structure, the waste forms produced are very durable and environmentally stable over long time durations; however, they remain toxic. EPA has declared vitrification the best-demonstrated available technology for HLW disposal.

**Commentor No. 17: Mike Conlan**

**From:** Mike Conlan [mikeconlan@hotmail.com]  
**Sent:** Friday, January 22, 2010 3:19 PM  
**To:** tc&wmeis@saic.com  
**Subject:** Comment Draft Closure & WMEIS for the Hanford Site

D.O.E.:

1) 99.9 retrieval rate of tank waste!

Clean the area as clean as scientifically possible, allow no further radioactive debris in Hanford until the area is clean, and the Hanford facility has the capability to clean any waste that is brought to WA.

Mike Conlan  
 Redmond WA

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The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the *TC & WM EIS* analyses. These include Tank Closure Alternatives 6A and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of the SST system. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

17-2

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

**Commentor No. 18: Tom A. Williams**

**From:** Tom Williams [wdhr@bmi.net]  
**Sent:** Sunday, January 24, 2010 4:06 PM  
**To:** tc&wmeis@saic.com  
**Subject:** Written Comments for January 26, 2010 Hearing.

Mary Beth Burandt, NEPA Document Manager  
U.S Department of Energy, Office of River Protection.

Please ad my comments to the record for the hearing on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland Washington.

The Columbia River is the lifeblood of the Pacific Northwest. Assuring its health is a high duty. Every effort should be made to contain and remediate contaminants on the Hanford Reservation from polluting the Columbia River. It should be recognized that preemptively acting on this contamination before it is widely dispersed is more cost effective than doing so after it is spread out. Containing radioactive contamination still in buried steel drums is easier than containing this contamination in the ground water. And containing contamination that has reached the ground water, but that is not yet widely dispersed is less costly to remediate than when it is further dispersed. Thus to meet safe clean-water standards and to do so cost effectively, it is necessary to properly do this work now, sooner rather than later, before significantly more dispersion occurs.

This is a health safety issue and an economic issue. The Reservation's original mission provided for our national defense. This mission must now be continued to protect our citizens from the after effects of this mission and it must be done quickly to control total remediation costs.

Respectfully Submitted,  
Tom A. Williams

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Regarding the status of groundwater contamination and remediation at Hanford, groundwater remediation activities, as required under RCRA, CERCLA, and/or the TPA, are in various stages of assessment, risk-based end-state development, corrective action, and/or active remediation. For a more comprehensive discussion of remediation at Hanford, see Section 2.3 of this CRD.

**Commentor No. 19: Larry Gadbois,  
U.S. Environmental Protection Agency**

**From:** Gadbois.Larry@epamail.epa.gov  
**Sent:** Monday, January 25, 2010 11:51 AM  
**To:** Mary\_E\_Burandt@RL.gov; tc&wmeis@saic.com  
**Subject:** EIS Question

Can someone please define "where necessary" as used in the EIS?  
 See below for more information. Thanks.

--Larry--

----- Forwarded by Larry Gadbois/R10/USEPA/US on 01/25/2010 08:43 AM-----

**From:** Larry Gadbois/R10/USEPA/US  
**To:** "Burandt, Mary E" <Mary\_E\_Burandt@RL.gov>  
**Date:** 01/13/2010 08:17 AM  
**Subject:** Re: Copy of the EPA presentation

Thanks for providing support to EPA during our review of the EIS.  
 I have one question which I have searched and searched for the answer and can't find it. Maybe you or someone on your team can help.

In multiple places in the EIS where clean closure of the tanks are discussed, it states that "Where necessary, deep soil excavation would also be conducted to remove contamination plumes within the soil column."

I can't find the criteria which trigger "where necessary."

I'd guess it means something like when contamination is greater than some concentration but I can't find that definition/threshold.

Can you tell me, where this is detailed?

To get to the core of one of the issues I am struggling with:

I work on CERCLA cleanups. All our cleanup RODs which address soil cleanup have two sets of cleanup concentrations.

One set, which applies to the top 15 feet of the vadose, is set at concentrations which protect for direct exposure to humans and eco receptors. The other set of cleanup numbers is designed to protect groundwater to MCLs and surface water quality standards when the groundwater reaches the Columbia River. That is mandated by the first two criteria of a CERCLA action, i.e. #1 protect human health and the environment, and #2 comply with ARARs (laws/regulations). So when I read "where necessary" I can't help operate from my framework of "necessary to protect groundwater to ARARs like MCLs", but I can't find an explanation anything like that in this huge document. Hoping you can help.....

Thanks Mary Beth.

--Larry Gadbois--

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Not all of the HLW tanks have leaked or have suspected plumes; therefore, deep soil excavation would be done only where plumes have occurred and clean closure is necessary. This is the meaning of the term "where necessary" in the sentence "Where necessary, deep soil excavation would be conducted to remove contamination plumes within the soil column." The definition of "clean closure" is provided in this *TC & WM EIS* in Chapter 9, "Glossary," and in a text box in Chapter 2. The tank farms are regulated under RCRA, so the RCRA definition for "clean closure" is used, as defined in Chapter 9 as follows: "clean closure – The premise of clean closure is that all hazardous waste has been removed from a given RCRA-regulated unit and any releases at or from the unit have been remediated so that further regulatory control under RCRA Subtitle C is not necessary to protect human health and the environment. Under State of Washington requirements (WAC 173-303-64) for closure of a tank system, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (e.g., liners), contaminated soils, and structures and equipment contaminated with waste and must manage them as dangerous waste as required."

Commentor No. 20: John Ritter

**From:** John Ritter [ritter@gorge.net]  
**Sent:** Tuesday, January 26, 2010 8:53 AM  
**To:** tc&wmeis@saic.com  
**Subject:** Hanford

PLEASE, Do not allow Hanford to become a dumping spot for Nuclear waste..... || 20-1  
It has been PROMISED for years to be cleaned -up. The Columbia flows into our ||  
Nation's greatest & largest National Scenic Area, THE COLUMBIA RIVER GORGE || 20-2  
.....Please , let's clean this spot up, and preserve this beautiful area.  
Sincerely, John Ritter, Hood River, Oregon

20-1 Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

20-2 With respect to the Columbia River Gorge, none of the alternatives would impact the scenic aspect of the gorge or its status as a National Scenic Area.

*Commentor Number 21 is not included in this Comment-Response Document  
because it is a duplicate of Commentor Number 15.*

Commentor No. 22: Gary L. Troyer

PUBLIC COMMENT  
 January 26, 2010  
 Richland WA

Draft TC&WM EIS which includes FFTF Decommission Decision

The subject EIS recommendations do not properly address emerging information and needs of the nuclear energy industry. This is a requirement of an EIS in bringing forth new information to the process.

Today, we find that the US nuclear industry is still needing fast neutron spectrum research and development data. This was true when the Fast Flux Test Facility was stopped in mid program in 1992. The need for data has only gotten worse since then. On a daily basis we are seeing the US private sector being driven overseas to gather information and embark on new innovations in those countries. Disallowing encouragement and internal use makes for a long term loss of technology advantage and employment.

Over time, several private and joint private/government proposals have been made for utilizing the FFTF. All have been stopped for other than technical merit. It seems wholly logical that based on US DOE actions, this property is excess. As such, the private sector or local government entities should be encouraged to have first option on its future. This alternative is not addressed in the EIS.

The recent dropping of activation funding for Yuca Mtn makes fast reactor research important. It is becoming more evident with this new direction that such is necessary fully utilizing this treasure trove of clean energy. If allowed, the FFTF fits this need.

Finally, due to our lackadaisical attitude and desire to unilaterally control proliferation, we have emasculated a key ability to provide medical isotopes used extensively in the US. Avoidance of using HEU for making the medical isotope <sup>99m</sup>Tc has not stopped proliferation. It has merely caused loss of availability, generating less efficient methods that require new development. Our reliance on foreign support is now hampering the medical profession and public health. The FFTF has huge potential to resolve these needs and has been proposed many times in that role.

As Energy Secretary Chu has stated regarding nuclear energy, we need to preserve this resource "... to provide options for future policymakers."

Sincerely

Gary L. Troyer  
 614 Cottonwood  
 Richland WA 99352  
 ■ ■ ■ ■ ■

22-1

22-1

DOE issued a ROD (66 FR 7877; January 26, 2001) for the *Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility (Nuclear Infrastructure PEIS) (NI PEIS)* (DOE 2000a) wherein DOE announced its decision that FFTF would be permanently deactivated. As discussed in Chapter 1 of this *TC & WM EIS*, Section 1.4.2, Decisions Not to Be Made, DOE is not considering restarting FFTF. The scope of this EIS is to address the final decommissioning of FFTF.



**Commentor No. 23: Claude L. Oliver**

US DOE FFTF Decommission Hearings  
Richland, Washington

January 26, 2010

**UNITED STATES DOE POLICY STEEPED IN "POLITICS" COSTING BILLIONS FOR TAX PAYERS AND UTILITIES and THOUSANDS OF JOBS GOING OVERSEAS**

Testimony By Claude L. Oliver  
Former Benton County Commissioner

One of the true regrets of my 30 years of public service for the people of Benton County, is the continued action by the United States Department of Energy to destroy the Fast Flux Test Facility (FFTF) and now abandonment of Yucca Mountain in Nevada with out compliance of Federal National Environmental Protection Law. Both FFTF and Yucca Mountain are technically connected and will cost tax payers, States, US DOE host communities and utilities billions for decisions that are currently steeped in "politics" rather than science.

President Bill Clinton's Energy Secretary Bill Richardson on the last day of the Administration signed off on the Record of Decision for the Fast Flux Test Facility establishing a decision of "permanent deactivation" of the fast flux. Mind you, this decision was steeped in anti-nuclear politics with nearly all world scientists in the nuclear field offering shocked concern that nuclear science had been ignored at the expense of the worlds most capable and newest multi billion dollar fast test reactor.

On June 5, 2002, a Blue Ribbon delegation coordinated by me with lead presentation from Dr. Alan Waltar the head of Texas A & M Nuclear Science Department along with Entergy Corporation made presentation to the President George Bush White House. Among group accomplishments, Entergy Corporation, had just the day before, received the most prestigious recognition, the "Thomas Edison Award", for being the nations best nuclear power provider. The case based on real science was made with superlatives to the White House.

Quick reaction by the George Bush Administration was determined through a July 15, 2002, Under Secretary of Energy Kyle McSillarow communication to the United States Department of Energy, Richland Operation (RL). Mr. McSillarow wrote that Secretary of Energy had directed him to advise RL to proceed with "immediate decommission destruction" of the multi-billion dollar fast flux test facility.

Strange, under freedom of information it was discovered that no such authority detailed in the July 15 US DOE HQ memo had been officially given by Bush Energy Secretary Spencer Abraham to start the destruction of US DOE, FFTF. As one might expect, Richland DOE contractor Flour Hanford immediately hired Cleg Crawford under CERCLA contract to carry out the illegal McSillarow July 15, 2002, destruct memo. Crawford had a trade reputation of getting the job done and if anyone got in his way they would be sorry.

US DOE repeatedly failed to embrace the spirit of the NEPA EIS process instead choosing the CERCLA environmental process followed by it's contractor Flour. CERCLA is intended to be used in an environmental disaster like Exxon Valdez spilling hundreds of thousands of barrels of oil. Due to the urgency of the environmental disaster, the federal agency in lead is not required to obtain any public input or factor any new critical information in the decision making process, thus going CERCLA. Clearly, US DOE HQ by following CERCLA violated the National Environmental Policy Law. that would have open the door for Nuclear

Tuesday, January 26, 2010 AOL: ClaudeOliver

23-1

23-1

DOE issued a ROD (66 FR 7877; January 26, 2001) for the *NI PEIS* (DOE 2000a) wherein DOE announced its decision that FFTF would be permanently deactivated. As discussed in Chapter 1 of this *TC & WM EIS*, Section 1.4.2, Decisions Not to Be Made, DOE is not considering restarting FFTF. The scope of this *TC & WM EIS* is to address the final decommissioning of FFTF.

**Commentor No. 23 (cont'd): Claude L. Oliver**

scientists, the public and the energy research development to express issues needing address by the United States DOE and others.

It was obvious, by the fall of 2002, that the Bush administration was Hell bent to destroy the Washington State facilities with active support from Washington State's two Democrat US Senators, Patty Murray, Maria Cantwell, plus all members of the Washington Congressional Delegation and US Senator Ron Wyden from Oregon.

**US DOE ignored responsibility under the National Environmental Policy Act and with all the political help and guidance it needed, drew up the largest small business award contract in the history of the US Department of Energy to expedite destruction of the Fast Flux Test Facility. So what about Federal NEPA law?**

Nuclear scientists and the people of Benton County, Washington State watched as no federal elected officials came to their aid as the Flour Hanford Contractor proceeded with advancing the Fast Flux tear down project. So in desperation, Benton County took the United States Department of Energy to Federal Court in November 2002, with Federal Judge Edward F. Shea presiding.

Washington State's US DOE FFTF decommissioning process under CERCLA pretense was a clear violation of National Environmental Policy Law designed to leave Nuclear scientists, the public and the energy research development needs of the United States out of consideration by US DOE and our federal elected officials. Federal Judge Edward F. Shea's February 28, 2003, ruled that,

**"Prior to committing any resources to any one of the options for decommissioning, the DOE must prepare an EIS. {NEPA} 40 CFR 1502.2 (f). This ensures the opportunity for public comment."**

Even with Judge Shea's ruling the people of Benton County were ignored as US DOE and it's elected federal officials issued CERCLA contract B-294910 for FFTF tear down was issued in early 2005. On August 31, 2005, I asked federal regulators, Government Accounting Office and US DOE Inspector General, to review what Contract Issue authority US DOE had to issued the FFTF tear down procurement contract B-294910 valued at \$260 Million dollars. Result - US DOE lacked authority and the contract was withdrawn. (Attachment #1)

US DOE's willful disregard of Federal Judge Shea's ruling was truly one of the low points of my public service career only surpassed by our elected Senators and Congressman watching with apparent approval. Sad commentary, Benton and Franklin County jails are full of citizens with no real violation of law that compared to what US DOE and our Federal Representatives have done to advance destruction of this incredible United States energy resource capability.

**As the Obama Administration rushes to destroy the Washington State Fast Flux Test Facility and abandon Yucca Mountain without required NEPA compliance, the United States will loose the near term nuclear fuels recycle demonstration capability that the FFTF, multi-billion dollar complex, offers which could preclude the very need for Yucca Mountain 10,000 year storage. The national impacts for President Obama's political decision are in the billions with glass vitrification from Hanford that was to go to Nevada being orphaned (See Attachment #2 Claude Oliver Energy Communities Alliance 8-18-09 letter).**

Tuesday, January 26, 2010 AOL: ClaudeOliver

*Response side of this page intentionally left blank.*

Commentor No. 23 (cont'd): Claude L. Oliver

President Barack Obama stated on October 15, 2009, in New Orleans:

"There is no reason why technologically we can't employ nuclear energy in a safe and effective way. Japan does it and France does, and it doesn't have greenhouse gas emissions, so it would be stupid for us not to do that in a much more effective way." (Attachment #3)

So in closing, your answers are requested to the following unanswered issues that will be directly affected by the US DOE decision on the proposed FFTF decommission:

1. Do any of you know what President Barack Obama meant with his comment "that it would be stupid for us not to do that (employ nuclear energy) in a much more effective way." (Attachment #3)? If you do not, then what does President Obama's statement mean in the context of the US DOE current plan to do away with a vital FFTF nuclear R&D facility?
2. If President Obama is serious about his New Orleans, "employ nuclear energy" statement, does President Obama understands the need for nuclear research and development that the FFTF could do for the United States to advance his embrace of nuclear energy employment?
3. Why did US DOE ignore Federal Judge Shea's ruling to do the FFTF NEPA EIS public process to the point of defying US DOE's court statements given to Judge Shea that US DOE was only, "Planning to Plan" US DOE FFTF decommission which became the basis of Judge Shea's acceptance of the US DOE policy position; yet US DOE then proceed to issue US DOE procurement contract B-294910 prior to doing the required NEPA EIS public process ordered by Judge Shea? (Attachment #1)
4. How is US DOE complying with required NEPA EIS environmental impact issues by abandoning Yucca Mountain Nevada without consideration of FFTF for a nuclear fuels materials waste recycle demonstration that could offer major scientific mitigation plus time and cost savings for which US DOE has legal obligations to address for Washington State, host communities and commercial utilities of the United States (See attachments #2)?

Options for Re-start of Fast Flux Test Facility must immediately be explored in context of national energy policy decisions being faced by US DOE, President Obama, Washington State, Washington Congressional Delegation, Nevada, commercial utilities and host US DOE communities. Protracted delay of address of our nations critical nuclear energy options means we are rapidly declining from being the world's nuclear power R&D leader as all major industrial nations go forward; with thousands of good paying jobs being lost overseas.

Please provide answers to these questions as quickly as you can. Thank you.

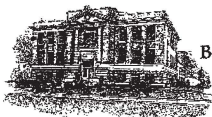
*Claude L. Oliver*

Claude L. Oliver  
Former Benton County Commissioner

*Response side of this page intentionally left blank.*

Tuesday, January 26, 2010 AOL: ClaudeOliver

Commentor No. 23 (cont'd): Claude L. Oliver



Board of County Commissioners  
**BENTON COUNTY**

P.O. Box 190 • Prosser, WA 99350-0190  
Phone (509) 786-5600 or (509) 736-3080  
Fax (509) 786-5625

Claude L. Oliver  
DISTRICT 3

August 31, 2005

Mr. David A. Ashen  
Government Accountability Office  
441 G Street, N.W.  
Washington DC

Mr. Gregory Friedman, Investigator General  
US Department of Energy  
Washington DC 20585

Determination of US DOE Authority to Contract the FFTF Closure Project,  
Procurement B-294910

Mr. Ashen & Mr. Friedman

The Richland Office of the United States Department of Energy (US DOE-RL) has publicly stated their intention to let a procurement contract for the teardown of the Fast Flux Test Facility and support facilities (FFTF) located at Richland, Washington. Does US DOE-RL have legal authority for issuance of this contract? Your review is requested.

The FFTF Closure Project was before U.S. District Court Judge Edward P. Shea in *Benton County v. US DOE* in November 2002. Judge Shea ruled on February 28, 2003. [CT-02-5100-EFS]

The FFTF Closure Project Plan was first issued in July 2002. This plan for Decontamination and Decommission of the FFTF to an entitlement end-state, was to be performed in accordance with requirements of Superfund, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). [Prior Hanford, DE-AC06-96RL13200, Modification M172, page C-89, December 19, 2002]. This CERCLA plan was contested by Benton County as being beyond the scope of deactivation and outside of the authority the National Environmental Policy Act (NEPA). The authorizing NEPA FFTF documents are: 1995 Environmental Assessment (95EA/PONSD), and in the NEPA NEFEIS Record of Decision (Richardson ROD), January 19, 2001. [Prior Hanford, DE-AC06-96RL13200, Modification M172, page C-89, December 19, 2002]

In response to the Benton County law suit, the US Justice Department offered *Exhibit D* to Judge Shea. Exhibit D is a December 10, 2002, letter from US DOE Secretary Abraham to HHS Secretary Thompson which states, "Regarding the Fast Flux Test Facility, the Department considered the possibility of restarting this reactor to help meet future medical isotope needs. However, after an exhaustive review, we concluded that the only proposal made to us to restart the facility was not viable and have therefore decided to proceed with the permanent deactivation of this facility..."

In the Shea ORDER, "The DOE acknowledges that it will have to prepare an EIS prior to deciding on a decommission plan. 10 CFR Pt. 102.1 (d) App. D (4) (4). As of yet, DOE has not decided what the "end state" for the FFTF facility should be. The DOE personnel communications the County has pointed to is evidence that the DOE is only currently engaging in planning, and that no final decommissioning approach has been selected. Prior to commencing any resources to any one of the options for decommissioning, the DOE must prepare an EIS. [NEPA] 40 CFR 1502.2 (g). This ensures the opportunity for public comment. Upon completion of the EIS, DOE will have made a final decision on decommissioning that can be the subject of a lawsuit seeking court review." [ORDER, p.14, lines 2-12]

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Commentor No. 23 (cont'd): Claude L. Oliver

Judge Shea upheld the deactivation authority in the 1995 Environmental Assessment (95EA/FONSI), and in the NE-PEIS Record of Decision (Richardson ROD), January 19, 2001. "...this PEIS incorporated the 1995 EA concerning deactivation by reference, and stated that decommissioning was not addressed due to the uncertainty regarding the timing of such action and that an EIS would be completed prior to decommissioning." [ORDER, p.3, line 22-25].

"The Court finds that both deactivation and decommissioning have independent utility. Deactivation's independent utility is placing the FFTF into a radiologically and industrially safe shutdown condition suitable for long-term surveillance and maintenance before final decontamination and decommissioning. This would allow the DOE to save approximately 30 million dollars per year. Decommissioning's independent utility is the ability to remove the FFTF from service and ensure that no long-term unacceptable risks exist to persons or the environment. As a result, the Court finds that it is not "unwise" or "irrational" to undertake deactivation without decommissioning until five, ten, thirty years, or never, given the financial savings of deactivating the FFTF..." [ORDER, p. 11, line 9-32]

On August 13, 2004, US DOE published in the Federal Register, a Notice to prepare an EIS for the Proposed Decommission of the FFTF (DOE/EIS-0364). Public Scoping meetings were held where oral and written comments were taken. Spring 2005 was the estimated issuance date of the Draft EIS. This schedule has now been "pushed" more than one year, now expecting a completion date of December 2006.

Procurement Rule 216 dictates that a contract cannot be awarded prior to the completion of the EIS and ROD. Any FFTF Closure Project contract must await completion of the NEPA EIS with a signed Secretarial Record of Decision. [Sec. 1021.216].

Washington State Department of Ecology and the US Environmental Protection Agency wrote letter, January 19, 2005, <sup>60</sup> "Competing demands for increasingly scarce cleanup resources compel us to focus on those projects that have the greatest potential to address environmental risk; FFTF D&D is not one of those projects." Why is this disputed procurement with questionable authority still going forward?

The FFTF Closure Project procurement contract, anticipated to be awarded, appears to be in violation of Judge Shea's ruling, 2-28-03. It appears that DOE's attempt to ignore Judge Shea's ruling should be stopped. Please review this concern, and provide your determinations.

Very truly yours,

  
Claude L. Oliver  
Benton County Commissioner

cc: Andy Miller, Benton County Prosecuting Attorney  
Michael A. Wilson, NWP, Ecology  
Nicholas Ceko, Hanford Project Office, EPA

Attachments:

1. Exhibit D Letter, Secretary Abraham to HHS Thompson, December 10, 2002.
2. Ecology and EPA Joint Letter, January 19, 2005.

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Commentor No. 23 (cont'd): Claude L. Oliver



THE SECRETARY OF HEALTH AND HUMAN SERVICES  
WASHINGTON, D.C. 20201

OCT 08 2002

The Honorable Spencer Abraham  
Secretary of Energy  
Washington, D.C. 20585

Dear Secretary Abraham:

I am writing to follow up on our recent exchange of correspondence concerning the Department of Energy (DOE) isotope production program. Your letter informed the Department of Health and Human Services that under your new policy, DOE will no longer subsidize production of isotopes. In response, I asked the Director of the National Institutes of Health, Elias Zerhouni, M.D., to undertake a full assessment of the impact of these changes on high-priority research initiatives. Dr. Zerhouni's staff has been working with Mr. William D. Magwood, IV on your staff to complete this assessment.

While our staffs are working toward ensuring that radioisotopes will be available for research purposes, I remain concerned that there may be insufficient quantities of radioisotopes for treatment and diagnostic purposes in the larger community. It was brought to my attention that the demand for medical isotopes may exceed the supply in the near future. As I understand it, as much as 90 percent of approved medical isotopes used in the United States are produced abroad, primarily in Canada, but also in Europe (including Russia), Israel, and South Africa. In addition, many U.S. radiopharmaceutical firms are owned by foreign parent companies. Thus, the United States may be unduly dependent on radioisotopes produced overseas. The U.S. medical radioisotope supply depends on production that we cannot control, and we cannot assure that radioisotopes can be reliably and securely imported.

Nuclear medicine has become a prominent modality and is certain to increase in use in future years as additional diagnostic and treatment uses are created. I understand that shortages of radioisotopes have occurred in the recent past. I am aware of and encouraged by DOE's recently announced initiative to convert uranium stored at Oak Ridge National Laboratory to medical isotopes for use in cancer research. I am also aware that DOE is currently considering a proposal by the Community ReUse Agency (CRA) to redeploy the Fast Flux Test Facility at Hanford. The CRA plan includes production of radioisotopes for research and medical diagnostic and treatment purposes. The Department of Health and Human Services is not in a position to make a judgement on the technical merits and economic feasibility of the CRA proposal; but given that one of its intentions is to increase the supply of radioisotopes for medical treatment and reduce the nation's dependence on foreign sources, I ask you to give the proposal every consideration.

Sincerely,

Tommy G. Thompson

Attachment # 1-A

*Response side of this page intentionally left blank.*

Commentor No. 23 (cont'd): Claude L. Oliver

Medical-Isotopes Sector Faces Another Supply Shortfall - WSJ.com

Attachment # 1-B

1/13/10 1:25 PM

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**Supply Woes Hit Isotopes Sector**

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**BY JON KAMP**

Overlapping reactor outages will soon rattle the supply chain for medical-scanning isotopes, causing fresh headaches for patients, doctors and companies that have dealt with repeated shortages in recent years.

This time, companies including Cardinal Health Inc. and Covidien PLC say advanced warning about a key coming plant outage helped them prepare. But the isotopes' very short lifespan means no one can stockpile supplies, and more than half the world's production capacity will be shuttered for about a month starting in mid-February.

Covidien told customers in a recent letter that it is using a "multifaceted" approach, but that "periods of significant shortages will still occur."

One of the top producers of material used to make isotopes, a reactor in Canada, has been sidelined since last May to fix a heavy-water leak, and the latest estimate is for a return by late March.

That is delayed from earlier estimates, which means the outage will overlap with a planned maintenance shutdown at the other major producer, in the Netherlands, which is slated to begin Feb. 19 and last six months.

The reactors produce material called molybdenum-99 that decays into technetium-99m, which is the world's most commonly used medical isotope. It is frequently used in scans to check for heart problems and cancer; there are an estimated 20 million nuclear medicine procedures in the U.S. each year.

The Canadian and Dutch plants are crucial global suppliers and particularly important for the U.S., where they are used to make nearly all isotopes. But both aging facilities have had issues and outages in recent years that have forced the industry to scramble for alternatives.

The supply chain is complex. In North America, MDS Inc.'s Nordion unit performs additional processing of material from the Canadian facility and then two companies—Covidien and privately held Lantheus Medical Imaging—make generators that produce the medical isotope.

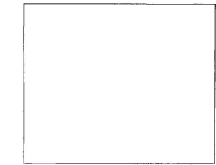
These are distributed to hospitals and through radiopharmacies, where Cardinal has the biggest business.

Covidien, which gets most resources from the Dutch plant, is managing the looming shortfall by retooling supplies of thallium, which is an older isotope used in heart scans; tapping molybdenum from other European reactors; and working with customers on efficiently using the isotopes they have.

The company announced plans last month to sell its radiopharmacy business to Triad Isotopes, Inc. for undisclosed terms in a deal expected to close in the second quarter.

WORKS BY JON KAMP

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PAGE 937

(Attachment #2)



December 10, 2002

2002-017662

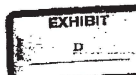
Dear Secretary Thompson:

Thank you for your continued interest in isotope availability. I am confident that Dr. Elias Zorhoumi and Mr. William D. Magwood, IV and their respective staffs will come to a timely completion of their assessment of the impact of policy and funding changes on the availability of isotopes to support important research activities.

1. **Isotope Production:** A major concern about the future availability of radionuclides needed for treatment and diagnostic purposes. For this reason, the Department of Energy is committed to assuring the maintenance of a viable U.S. capability to produce important research isotopes. As an example, we are investing in a new Isotope Production Facility, a new production capability at the Los Alamos Neutron Science Center. This facility will be operational in 1995 and will provide isotopes vital to many research efforts. The Isotope Production Facility will be operational in late 2003. In addition, a conceptual design has been developed for a new 70 million electron volt cyclotron dedicated to the production of many important medical isotopes. These activities, together with ongoing production of isotopes for medical use, will ensure that the Department and various universities will enable key medical research to continue.

The Department is not in a position to support commercial-scale production of future isotopes. We will continue to make our facilities available for private sector production initiatives and will continue our work with overseas producers to make their isotopes available for use in the United States. We believe that as successful research reveals the need for future isotopes, the private sector will be able to respond to the Nation's requirements.

Regarding the Fast Flux Test Facility, the Department considered the possibility of restarting this reactor to help meet future medical isotope needs. However, after an exhaustive review, we concluded that the only proposal made to us to restart the facility was not viable and have therefore decided to proceed with the permanent deactivation of this facility. In addition, to support this facility for commercial isotope production is inconsistent with the Department's



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*Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington*



Commentor No. 23 (cont'd): Claude L. Oliver

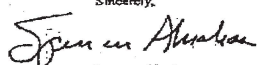
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position. Work is now underway to permanently shut down the Fast Flux Test Facility, and we do not expect to revisit this issue in the future.

The assessments being conducted by our organizations will serve as a basis for future investments by the Department in facilities to meet research isotope requirements. The Department will maintain an enduring role in the production and distribution of isotopes needed to support important research into advanced diagnostic and therapeutic procedures. We welcome continued collaboration with the National Institutes of Health on this effort.

Please feel free to contact me or have a member of your staff contact Mr. William D. Magwood, IV, Director of the Office of Nuclear Energy, Science and Technology, at 202-586-6630 to discuss any of these items.

Sincerely,

  
Spencer Abraham

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Commentor No. 23 (cont'd): Claude L. Oliver



January 19, 2005

Keith A. Klein, Manager  
Richland Operations Office  
U.S. Department of Ecology  
PO Box 550, MS A7-50  
Richland, Washington 99352

Dear Mr. Klein: *Keith*

Re: Fast Flux Test Facility (FFTF) Decommissioning

The purpose of this letter is to ask you to consider deferring portions of the Fast Flux Test Facility Decommissioning and Demolition (D&D) project until after higher priority cleanup projects at Hanford have been completed. While we support defueling, removal of liquid sodium, and other actions required to place the facility in a min-safe configuration, the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) believe that it may be appropriate to defer final D&D actions, given the reality of increasingly tight cleanup budgets at Hanford. We were recently briefed by your staff on the final FY 2005 budget; it is increasingly apparent to us that budgets are tight and will get tighter. We understand that in 2006, resources devoted to cleanup at Hanford are anticipated to decrease from 2005 levels.

Competing demands for increasingly scarce cleanup resources compel us to focus on those projects that have the greatest potential to address environmental risk; FFTF D&D is not one of those projects. The \$45,714,000 FY 2005 budget allocation for FFTF represents a significant portion of the Hanford EM cleanup budget. It is our view that FFTF work should proceed only until it can be placed in a min-safe configuration, at which point those funds projected to support FFTF D&D should be shifted to higher priority cleanup projects.

We look forward to discussing this proposal with you at your earliest convenience.

Sincerely,

*Michael A. Wilson*  
Michael A. Wilson,  
NWP, Program Manager

*Nick Ceto*  
Nicholas Ceto, Program Manager  
Hanford Project Office

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**Commentor No. 23 (cont'd): Claude L. Oliver**

Subj: (no subject)  
Date: 1/25/2010 3:58:16 A.M. Pacific Standard Time  
From: ClaudeOliver@aol.com  
To: claudeoliver@aol.com

*ATTACHMENT #2*

Sent: Tue, Aug 18, 2009 4:31 pm  
Subject: Political Decision to drop Yucca Mountain requires NEPA analysis

Mr. Seth Kirshenber, Executive Director  
Energy Communities Alliance  
Washington, DC 20036-4374

Dear Seth:

Do you know how folks around the various sites are accepting President Barack Obama's decision to abandon Yucca Mountain long term nuclear materials storage option without any National Environmental Policy Act (NEPA) compliance supplement being factored by the United States Department of Energy? While we all can respect that President Obama can make such a decision, we also as a Nation must pay for each decision that our President makes. The decision to abandon Yucca Mountain has billions of dollars of additional costs and significant environmental impacts to the federal government that have yet to be evaluated.

From a scientific point of view, I strongly believe that 25 years ago the US DOE decision on long term storage at Yucca Mountain without a national reprocess waste reduction option was impractical. Aside from nuclear science not being continued in this process, Yucca Mountain was the call of the day for highly radioactive waste long term storage. \$15 Billion later we have a \$15 Billion Dollar hole in the ground. Regardless of the outcome, we now have several decades of decisionmaking made by the US, States, local governments, Native American Tribes, utilities and rate payers that have paid for, planned and counted on that Yucca Mountain to be open and accepting nuclear wastes. Areas that US DOE would have to evaluate before abandoning Yucca Mountain:

1. Large amounts of US Defense spent nuclear materials and fuels at US DOE sites across the Nation
2. Glass Logs from the Hanford Tank Waste Vitrification Process sometime around 2020 that have no home
3. Spend Nuclear Fuel generated and temporarily stored at the 102 active Nuclear Utilities in the United States
4. Various State and Native compliance agreements that US DOE will violate if Yucca Mountain is not available
5. States' ratepayers have paid \$ billions for waste disposition that is being lost.
6. Failure to accept the waste that they have title for and have collected money to handle.

In December 2002, nearly all arguments that our community posed successfully challenging the US DOE to do a National Environmental Policy Act (NEPA) compliance regarding the Fast Flux Test Facility deactivation or decommission process are the same for a Yucca Mountain challenge. I would greatly appreciate if you would poll our folks around the country to see what interest levels they might express to legally challenge US DOE to enforce NEPA compliance and do a NEPA Supplemental EIS before abandoning the Yucca Mountain long term storage option.

Very Best Regards,  
Claude L. Oliver  
Former Benton County Commissioner

Tuesday, January 26, 2010 America Online

*Response side of this page intentionally left blank.*

Commentor No. 23 (cont'd): Claude L. Oliver

ATTACHMENT # 2-A Page 1 of 2

Subj: Pay Back Time - U.S. Court of Appeals - Nuclear Waste Fund  
Date: 1/25/2010 9:11:50 A.M. Pacific Standard Time  
From: holdercarl@hotmail.com  
To: claudeoliver@aol.com, tamaranoraholder@gmail.com

The federal government better get ready to start paying out billions to electric utilities across the country, judging by the recent court ruling favoring the Nebraska Public Power District. It's only fair.

The ruling by the U.S. Court of Appeals for the federal circuit in Washington, D.C., struck down the federal government's excuse for not paying back \$159 million NPPD gave the government over many years to build a permanent storage site for nuclear waste.

The federal government argued that delays in the 20-year process were unavoidable. Not so said the court.

The argument that the federal government was moving as fast as it could to build the site at Yucca Mountain, Nev., was always flimsy. Now it's preposterous. President Barack Obama effectively killed the project shortly after taking office.

Obama took the action despite a Department of Energy statement that "After over 20 years of research and billions of dollars of carefully planned and reviewed scientific fieldwork, the (DOE) has found that a repository at Yucca Mountain brings together the location, natural barriers and design elements most likely to protect the health and safety of the public, including those Americans living in the immediate vicinity, now and long into the future."

The Obama administration tried to dodge the possibility of repayment by not officially withdrawing the license application for the Yucca Mountain site. Instead it cut back funding to virtually nothing, bringing the project to a standstill.

Theoretically the government should have no problem repaying the money, since it ostensibly had been placed in a Nuclear Waste Fund with a purported balance of \$22 billion. But as the U.S. Chamber of Commerce noted in a report last year, "The NWF is largely a budgetary gimmick."

The chamber said, "It is a widely known secret that there really is not an account at the Treasury Department with \$22 billion waiting to be spent on the project. Much like the country's Social Security program, the surplus collected annually is generally used for other purposes, namely to offset deficit spending."

Obama's decision to kill the project meant that more casks of nuclear waste were put in storage at Nebraska's Cooper Nuclear Station near Brownville and the Fort Calhoun Station near Omaha at considerable expense. Similar actions were taken at other nuclear power plants all around the country.

Given the federal government's failure to live up to its responsibility under the law to build a permanent storage site, it's a matter of simple justice that NPPD and other utilities be repaid. Ratepayers in Nebraska, who own their electric utilities, handed over the money in good faith. Now they should get it back.

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Monday, January 25, 2010 AOL: ClaudeOliver

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**Commentor No. 23 (cont'd): Claude L. Oliver**

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*Response side of this page intentionally left blank.*

Monday, January 25, 2010 AOL: ClaudeOliver

Commentor No. 23 (cont'd): Claude L. Oliver

*Attachment #3*

October 21, 2009  
614 Cottonwood Drive  
Richland WA 99352

The President of the United States  
The White House  
1600 Pennsylvania Avenue NW  
Washington, DC 20500

Dear Mr. President

I could not agree more with your comments of October 15, 2009 in New Orleans:

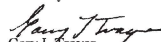
... "There's no reason why technologically we can't employ nuclear energy in a safe and effective way. Japan does it and France doesn't and it doesn't have greenhouse gas emissions, so it would be stupid for us not to do that in a much more effective way." ...

The US has demonstrated many times that we can safely and effectively deploy nuclear energy. US nuclear energy has an industrial safety record better than office workers. Our policies on not reprocessing used fuel have been a failure related to proliferation issues; therefore it needs reversal like France and others. Such reversal will solve the used fuel inventory in relation to the Yucca Mountain repository. Energy production costs are better than coal. Reliability exceeds 90%, better than any other source except perhaps hydro. Let's get on with it!

But, we have a major impediment on enabling advanced designs. China has approved and is going forward with US designs while our NRC stalls. China has approved and is building fast spectrum reactor models based on Russian examples. Our needed testing programs formerly using our world class similar technology test reactor are shutdown. The next US designed and US patented fast reactor will likely be built and certified in China because of regulatory approval uncertainty. Our NRC needs to be renewed with advanced reactor talent and regulations revised in concert with what the rest of the world is accomplishing such as adoption of IAEA standards. Let's get on with it!

We are 30 years behind. But, we can do it.

Sincerely

  
Gary L. Troyer  
Nuclear Chemist, retired  
gary@kandg.org  
509-946-3425

*Response side of this page intentionally left blank.*

Commentor No. 23 (cont'd): Claude L. Oliver

Attachment # 3 A

THE WHITE HOUSE  
WASHINGTON

December 9, 2009

Dear Friend:

Thank you for writing me. I appreciate hearing from you, and I share the vision of millions of Americans who want to make our country the world leader in developing new sources of clean energy. This is a challenge that has gone unaddressed for too long, and it is time to take steps to create millions of clean energy jobs, move towards energy independence, and reduce pollution and the effects of global warming.

Together with Congress and private industries, we are making critical investments to grow an American clean energy economy and achieve energy independence. The American Recovery and Reinvestment Act puts Americans to work weatherizing homes and buildings, doubling our supply of renewable energy, and advancing scientific research in clean energy solutions. We are working to develop and deploy technologies like wind and solar power, advanced biofuels, clean coal, and more fuel-efficient cars and trucks built here in the United States. In addition, my Administration is pursuing comprehensive legislation to move toward energy independence and prevent the worst consequences of global warming, while creating incentives to make clean energy profitable in America.

Achieving these goals will require a sustained and shared effort by government, business labor, and your community. A sound energy policy is a long-term investment in our national security, economic prosperity, and natural inheritance.

Thank you again for writing. I encourage you to read more about my energy agenda and share your views at: [www.whitehouse.gov/agenda/energy\\_and\\_environment](http://www.whitehouse.gov/agenda/energy_and_environment). For more information on government grants, please visit [e-center.doe.gov](http://e-center.doe.gov).

Sincerely,



*Response side of this page intentionally left blank.*

Commentor No. 23 (cont'd): Claude L. Oliver

Subj: US, India inch "closer to nuclear fuel reprocessing agreement"  
Date: 1/26/2010 3:01:51 A.M. Pacific Standard Time  
From: ClaudeOliver@aol.com  
To: claudeoliver@aol.com

*Attachment 3-8*

Page 1 of 4

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US, India inch 'closer to nuclear deal'

(AFP) – Nov 29, 2009

NEW DELHI — India and the United States are close to signing a nuclear fuel reprocessing agreement, one of the last requirements to finalise last year's landmark civilian nuclear deal, an official said Sunday.

Indian National Security Adviser M.K. Narayanan told reporters "we have arrived at almost the very last stage" of negotiations.


Narayanan was speaking on board Prime Minister Manmohan Singh's plane as he returned from a Commonwealth summit in Trinidad and Tobago.

The establishment of nuclear reprocessing facilities under International Atomic Energy Agency (IAEA) safeguards is a critical component of the implementation of the Indo-US nuclear deal, sealed in 2008 with former US president George W. Bush.

The agreement allows India access to civilian nuclear energy despite its refusal to sign the Non-Proliferation Treaty.

Singh said on an official visit to Washington last week that he was confident US President Barack Obama would "operationalise the nuclear deal as early as possible."

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Indian National Security  
Adviser M. K. Narayanan  
Map

*Response side of this page intentionally left blank.*

Tuesday, January 26, 2010 AOL: ClaudeOliver



Commentor No. 23 (cont'd): Claude L. Oliver

*Attachment # 3-C*

**Private capital awaits “long-term signal”  
on carbon – Chu**

By Ben Geman - 11/29/09  
The Hill Newspaper

A couple tidbits from Energy Secretary Steven Chu’s appearance on C-SPAN’s Newsmakers program that aired today:

Chu made the case that a U.S. greenhouse gas emissions cap will help bring private capital into energy projects.

The stimulus law and other recent policies are pouring billions in federal assistance into low-carbon technologies. But that’s just part of the equation, Chu warned.

More certainty about future carbon policy will influence decisions about multi-billion dollar investments in projects expected to operate for 60 years or more, he said.

“That long-term signal is very important,” Chu said. “There is a lot of capital right now staying on the sidelines, wanting to know what is the signal, what is it going to be.”

Elsewhere, he said the “blue-ribbon” commission he is forming to explore long-term solutions to nuclear waste management will be announced soon.

The Obama administration has abandoned federal plans launched in the 1980s to build a high-level waste dump inside Yucca Mountain in Nevada. “We want this blue-ribbon panel to step back and make some reasonable assumptions about what do we know today that we didn’t know 25 years ago,” Chu said.

Overall, he sees a glass that’s half-full when it comes to working with Congress. The administration and congressional Democrats face a major challenge to win 60 Senate votes for a climate and energy bill that includes an emissions cap.

“There are certain people who have just decided they are not going to come around, and so that is life. I am not so wildly optimistic that I think I can convince everyone,” Chu said. But, he added, “A large bipartisan group is willing to listen.”

He also surveyed the lay of the land internationally heading into the Copenhagen climate talks. Chu lauded what he calls China’s growing recognition of threats from climate change, and increasing efforts to deploy renewable energy and efficient coal-fired power plants.

*Response side of this page intentionally left blank.*

Commentor No. 23 (cont'd): Claude L. Oliver

*Attachment # 3-D*

**Nevadans 4 Carbon-Free Energy (NV4CFE)**  
Founders of the Nevada Energy Trust Fund

**Mission**

Our mission is to enlighten Nevadans about the economic benefits of an energy park at Yucca Mt.

Our objective is to operate a nuclear repository, to research and develop carbon-free energy technologies, recycle spent fuel, and generate carbon-free power, all to the direct economic benefit of Nevadans.

Goals

- Develop the Yucca Energy Park that will store spent fuel at Yucca Mt.
- Develop a facility that will research and develop carbon-free energy technologies
- Charge for the storage of spent fuel
- Build a facility to recycle spent fuel to power a generation facility and sell to other facilities
- Create a trust fund that will provide direct financial benefit to Nevadans

Organizational Structure

Form a non-profit corporation that will operate Yucca Energy Park. Contractors will operate the storage facility, the research facility, and power generation facility. Create a permanent trust fund, similar to Alaska, where the profits from the Energy Park will be paid directly to qualified Nevadans.

Background

Our idea is to form a non-profit corporation that would manage the Yucca Energy Park. It would not operate the repository, as that is a federal contract.

We envision forming a non-profit business entity that would develop the energy park and seek contractors to build a recycling facility and a power generation facility contiguous to the repository. The project is proposed as a commercialized operation under a non-profit entity, similar to what Claude Oliver is proposing at Hanford.

Revenue will come primarily from recycling of used nuclear fuels and revenue from electricity sales generated by the commercial scale. Since it seems likely that other recycling centers will be built in the country, we also see the sale of spent fuel to them as another income source.

The profits would be placed in a trust fund that will be distributed annually to qualified Nevadans, similar to Alaska. Creation of a trust fund will likely take State legislation.

*Response side of this page intentionally left blank.*

**Commentor No. 24: John Swanson**

**From:** JohnLSwanson@verizon.net  
**Sent:** Thursday, January 28, 2010 11:34 AM  
**To:** tc&wmeis@saic.com  
**Subject:** Draft TC&WM EIS Comments  
**Attachments:** EIS.docx

Here are some comments for you to consider and address. Hopefully, they will help to improve the final version.

John Swanson

*Response side of this page intentionally left blank.*

Commentor No. 24 (cont'd): John Swanson

1-28-10

Comments on

Draft Tank Closure and Waste Management Environmental Impact  
Statement for the Hanford Site

John L. Swanson  
1318 Cottonwood Dr.  
Richland, WA 99354  
xxx-xxx-xxxx  
JohnLSwanson@verizon.net

) These comments are based on my review of only the EIS Summary and Appendix E. I imagine that many of my comments apply to elsewhere in the EIS, as well – where the same subjects are being discussed.

) I have limited my review and comments to the area in which I have had some experience – which is in dealing with the tank wastes.

) No comments will be made here about the idea of disposing of some tank wastes at WIPP – in light of DOE's recent decision not to pursue that option.

) I think that this EIS should be modified so that it states “early and often” that the alternatives that are examined were selected to provide “bounding environmental results”, and that the technologies that are included in the alternatives may well not be implemented even if the general alternative is implemented. While this fact is likely a “given” to the writers of the EIS, I don't believe that is obvious to the general public. By “early”, I suggest that the concept should be clearly stated in Section S.1 (perhaps in the box on S-1?); by “often”, I think it would be good to use a simple term (maybe “example technology”, or “bounding technology”, or ??; I see “representative technology” on E-37 [I like that]) throughout the report.

- There is a pretty good sentence on E-1 about this; “In many cases, those technologies were selected to provide bounding environmental consequences and do not necessarily represent the exact technologies or processes that could be implemented to achieve the desired outcome.”
  - o The paragraph in the middle of E-69 is also good in this regard.
- While I saw the term “representative technology” on E-37, that's one of the few places that I saw it; it would have been beneficial to use it many times in this appendix.

24-1

24-1

The following paragraph was added to the Summary, Section S.2, and Chapter 2, Section 2.5.1, of this *TC & WM EIS*:

“Each alternative relies on a combination of technologies, processes, and facilities that could accomplish the desired outcome for that alternative. In many cases, those technologies were selected to provide bounding environmental consequences and do not necessarily represent the exact technologies or processes that could be implemented to achieve the desired outcome. This *TC & WM EIS* does not attempt to analyze all possible permutations of the alternatives (the alternatives analyzed in this EIS represent the range of reasonable approaches) using available technologies and processes, but instead attempts to group activities logically into reasonable alternatives for analysis. The technologies, processes, and facilities analyzed in detail in this EIS have sufficient performance data to make conservative assumptions regarding construction, operations, and decommissioning impacts. However, comprehensive and specific engineering designs may still have to be developed once a series of technologies is selected for implementation.”

**Commentor No. 24 (cont'd): John Swanson**

) The cover sheet (also S-2) says "Hanford's mission --- included defense-related nuclear research, development, and weapons production activities." I have several problems with that sentence:

- No weapons were produced at Hanford (production and purification of plutonium for use in weapons [which were produced elsewhere] was the reason for Hanford's existence).
- Research and development were "secondary missions"; most of these efforts were directed towards improvements in plutonium production and purification.

Similarly, S-2 says "At the reprocessing plants, ---- plutonium was separated from the remaining uranium and byproducts and used for nuclear weapons production." Really, that sentence should end with "byproducts" and another sentence should be added along the lines of "The purified plutonium product of the reprocessing plants was shipped offsite to be included in nuclear weapons."

) The cover sheet provides a reference for the definition of HLW, but not for TRW waste or LLW. Why not re-word the sentence so that the same reference covers all the waste types? Also, point out that the definition of TRU waste includes an exclusion for HLW?

) The cover sheet uses, but does NOT define, the term "LAW". Shouldn't that be done here, especially to explain how LAW differs from LLW?

- LAW is defined on S-2

) Disposal of LLW is mentioned on S-1 (also on S-21), but not disposal of LAW (disposal of which was mentioned in the cover sheet). Consistency?

) The second paragraph on S-2 would be a good place to mention that three different purification/separation processes were used at Hanford. The first two (bismuth phosphate and REDOX) had large impacts on the kinds and quantities of chemicals that ended up in the waste tanks.

) The last paragraph on S-2 speaks of "new chemicals" being introduced to the tanks when uranium was extracted from some of the wastes – but doesn't make the same comment about the B Plant processes that were removed to extract cesium and strontium. "New chemicals" such as organic complexing agents were added at B Plant during strontium extraction; such chemicals have had important effects on tank waste chemistry – and, thus, might be worthy of mention here.

) Page S-6 says "--- in light of reviews of technetium-99 in ILAW glass, DOE and Ecology agreed to delete technetium removal from the WTP permit ---". Specify what was reviewed; behavior, performance, retention, leachability?

24-2

24-3

24-4

24-5

24-6

24-7

24-8

24-2

DOE's proposed actions as discussed in this *TC & WM EIS* are based on the purpose and need for agency action (see Chapter 1), which helps DOE to accomplish its current primary mission of cleaning up Hanford.

24-3

The abstract provided on the cover sheet is intended to provide a very brief overview of the proposed actions discussed in this EIS. The waste-type definitions are not all drawn from the same source or reference, and a detailed definition of each waste type is not appropriate for this overview. However, full definitions of the waste types analyzed in this EIS are provided in Chapter 9, "Glossary," as well as in other chapters of this EIS, where applicable (e.g., the Summary, Section S.1, and Chapter 2, Section 2.2).

24-4

Because many other terms that a reader may not understand are used in the cover sheet, a glossary is provided in both the Summary, Section S.9, and Chapter 9 of this *TC & WM EIS*.

24-5

The text box entitled, "Waste Types Analyzed in This Environmental Impact Statement," in the Summary, Section S.1.1, page S-2, of the *Draft* and this *Final TC & WM EIS*, as well as Section S.9, Glossary, defines LAW as follows: "Waste that remains after as much radioactivity as technically and economically practical has been separated from HLW that, when solidified, may be disposed of as LLW in a near-surface facility."

To address the commentor's consistency concern and clarify the text, the cover sheet (item 1 under the abstract) of this *Final TC & WM EIS* was changed to read: "LAW would be treated in the WTP and disposed of as LLW at Hanford as decided in DOE's ROD issued in 1997 (62 FR 8693), pursuant to the *Tank Waste Remediation System, Hanford Site, Richland, Washington, Final Environmental Impact Statement* (DOE/EIS-0189, August 1996)."

24-6

This level of detail is not appropriate for the Summary of this *TC & WM EIS*. More information on the composition of the tank waste is found in Chapter 2, Section 2.2.

24-7

This section of the *TC & WM EIS* Summary, History of the Hanford Site, is only a one-page summary and is not meant to be an all-inclusive history.

24-8

Appendix E, Section E.1.2.3.10, includes additional information on the decision to remove this capability from the WTP, as well as a reference: Hedges 2008 (Ecology letter to S.J. Olinger [DOE-ORP], et. al., dated October 15, 2008; subject: "Draft Waste Treatment and Immobilization Plant (WTP) Dangerous Waste Permit"). Included in this referenced letter is Ecology's Statement of

**Commentor No. 24 (cont'd): John Swanson**

- The discussion on S-91 suggests that the deletion of technetium removal was “justified” because of the existence of other sources of technetium that give a higher release rate than ILAW glass. If that’s the case, you should say so here.

Also, this sentence is surprising in light of what is said in Ecology’s January 2010 hand-out “Focus on Technetium-99 Removal” – that “Ecology supports sending more of the Tc-99 offsite to a deep geologic repository ---.”

**24-8  
cont’d**

) Doesn’t deletion of technetium removal from the WTP place in jeopardy the ability to classify the waste as LAW? I believe that a large fraction of the technetium is present in the tanks as pertechnetate ion, which can be removed fairly easily. Thus, I believe that it could now be argued that much of the treated waste could NOT be called “ILAW” because it will NOT be true that “as much radioactivity as technically and economically practical has been separated from HLW” (definition of LAW as given on S-2).

**24-9**

) Why isn’t disposition of the cesium and strontium capsules included in the EIS (per S-13)?

- After reading further (S-23), where de-encapsulation and treatment is discussed, I wonder if better wording here wouldn’t be along the lines of “---- disposition of the cesium and strontium **that is currently in the capsules** will be determined ----”?

**24-10**

) Shouldn’t you change the construction cut-off date for Alternative 1 to something later than 2008 (S-23)?

**24-11**

) S-24 refers to bulk vitrification of a portion of the LAW in the 200-West Area. It wasn’t till I read Appendix E that I realized that you have determined that tank waste containing less than a certain concentration of cesium-137 could be consider to be LAW “as is”. I think that fact should be made clear in the summary, too.

**24-12**

) On S-24, is “--- cast stone treatment ---” with no explanation of what that is. Ditto for “steam reforming treatment”.

**24-13**

- Explanations are on S-37. . It would be helpful if the explanation would come the first time the term is used.

) On S-25, Alternatives 6A and 6B (disposal). What is “clean closure”?

**24-14**

- Explanation is on S-26. It would be helpful if the explanation would come the first time the term is used.

) S-33 mentions vacuum-based retrieval. I hope that the materials to be retrieved will not be dry (or dry out during retrieval), or contamination control will be much more difficult.

**24-15**

Basis, Proposed Modification of the Waste Treatment and Immobilization Plant Conditions in the Dangerous Waste Portion of the Hanford Facility Resource Conservation and Recovery Act Permit, which clarifies Ecology’s decision. In summary, it states: “Ecology wants to ensure that any of the waste forms resulting from WTP unit treatment will meet the exposure and ground water performance criteria. The proposed permit conditions require that any waste forms from the WTP treatment process meet performance assessment groundwater and exposure limits, not result in a substantial groundwater impact for any significant mobile contaminant of concern, and not approach the Federal drinking water standard. These conditions are intended to ensure that, if the performance assessment shows any contaminant of concern, such as Tc-99, in any waste form may pose a threat to human health or the environment, additional treatment of the waste will be required.”

**24-9**

As discussed in Chapter 8, Section 8.1.5, according to DOE Order 435.1, the LLW and MLLW disposal facilities (and the waste disposed in these facilities) that are analyzed in this EIS would be subject to the appropriate DOE Manual 435.1-1 requirements, including requirements for waste incidental to reprocessing. DOE fully intends to meet these requirements.

**24-10**

Cesium and strontium capsule treatment is described in detail in Appendix E, Section E.1.2.3.4, of this *TC & WM EIS*. At this time, DOE has not made final disposition decisions about the cesium and strontium capsules and will not make these decisions based on this EIS.

**24-11**

The WTP is currently being constructed at Hanford. As discussed in Chapter 4, Section 4.1, of this EIS, DOE assumed for analysis purposes that construction of the WTP would be terminated in 2008 under Tank Closure Alternative 1.

**24-12**

The suggested addition is at a level of detail that is not appropriate for the Summary of this *TC & WM EIS*. The Summary is intended to provide a brief overview of the material contained in this EIS and, by nature, cannot include specific details from the appendices. Recognizing that many people may not read beyond the Summary, DOE attempted to strike a balance between those readers interested in the technical details regarding DOE’s proposed actions and alternatives and readers seeking a simple overview.

**24-13**

Because there are many terms used throughout this *TC & WM EIS* that a reader may not intuitively understand, a glossary was provided in both the Summary, Section S.9, and Chapter 9 of the main body of this EIS.

**Commentor No. 24 (cont'd): John Swanson**

) S-36 contains some examples of inconsistent usages, which it would be nice to avoid:

- a) The box says that there is a High Level Radioactive Waste Vitrification Facility; the text description omits the word "Radioactive".
- b) The text says "--- treat waste, and convert treated waste into a glass form ---." Per the usage back when I was working (and, apparently, when the facilities within the WTP were named), "treat" referred to the immobilization step (e.g., vitrification, grouting, steam reforming) and "pretreat" referred to steps taken prior to immobilization (e.g., radionuclide removal, solids removal). The wordings on this page indicate that "treatment" will take place in a "pretreatment facility"; this adds unnecessary confusion.

) S-37 says "--- electrodes would be inserted into the waste." Shouldn't that be "--- inserted into the waste/soil mixture"?

) S-37 says "--- LAW retrieved from the tanks ---." Per the definition of LAW (S-2), that means that some in-tank radionuclide separation processing is planned. Is that really the case? (I've seen no mention of it)

- Maybe the Solid-Liquid Separations Processes description on the next page is implied here? It's not clear whether the settling and decanting process would be done within the storage tank or elsewhere.
- In reading Appendix E, I see that some of the tank wastes have already been classified as LAW – which makes the statement on S-37 okay. HOWEVER, shouldn't the Summary discuss (at least, state) this fact? I think so.
  - o In my second time through the Summary, I do find on S-38 "--- waste that may contain low cesium-137 concentrations ---.", BUT it doesn't say there that it is considered to be "LAW".

) S-38, Sulfate Removal, says "--- then the tank waste would be filtered and solidified using grout-forming additives." Isn't it the filtered solids that are grouted rather than the tank waste itself?

) S-38, Technetium, "Under all other Tank Closure alternatives, technetium-99 would remain in the LAW stream." I thought there were data showing that a fraction of the Tc was present in the waste in insoluble form(s); that fraction would go to the HLW stream.

) S-50, Section S.4.1.3 lists four "treatment and pretreatment technologies" that were initially considered but were eliminated from detailed consideration in this EIS. Shouldn't some "consideration time frame" be provided here – or the list of considered technologies be expanded appreciably?

- I'm sure that other technologies were considered at the time of the initial TPA, and in subsequent years. One example is "grouting" (I guess it's now being called "cast

24-16

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24-14 A text box has been added to the *TC & WM EIS* Summary, Section S.2.1.5, to clarify the different closure scenarios evaluated in this EIS.

24-15 As discussed in Appendix E, Section E.1.2.2.2, the mobile retrieval systems (MRSs) use mostly air and a small amount of water to retrieve the tank waste. In addition, as discussed in Section E.1.2.2.3, a ventilation system within the tank maintains a negative tank pressure to ensure the airflow is pulled into the tank at all times and airborne contamination is not released from the tank.

24-16 The term is not spelled out in the text as it is in the text box. Rather, the acronym "HLW," meaning "high-level radioactive waste," is used. This acronym is defined in the list of abbreviations and acronyms provided in the front of the Summary, as well as in the text box explaining the various waste types on page S-2 and in the text on the same page. To address the commentor's concern and confusion, the wording on page S-36 of the *Draft TC & WM EIS* has been changed to "...pretreat waste, and convert the pretreated waste into a glass form..." (page S-55 of this *Final TC & WM EIS*).

24-17 The text in this *Final TC & WM EIS* was revised to read, "...inserted into the waste and sand/soil mixture."

24-18 In the *Draft TC & WM EIS* Summary, Section S.3.1.4, under the heading "Steam Reforming," the use of the phrase "LAW retrieved from the tanks" is correct. This phrase refers to the retrieval of LAW from one or more of the LAW tanks identified in Appendix E, Table E-8, in the final EIS. For analysis purposes, this EIS assumes that the waste from these tanks is LAW due to the low concentration of cesium-137, as discussed in Section E.1.2.3.5.2. The Solid-Liquid Separations Facility, located in the 200-West Area, provides a settling and decanting operation that would result in strontium and TRU waste precipitation. This precipitated solid-waste stream would be forwarded to the WTP, while the decant solution would be forwarded to a supplemental treatment technology facility. In the referenced section within the Summary, this would be the steam reforming supplemental treatment facility. However, the following clarification was made to the referenced sentence in this section: "Pretreated waste or LAW retrieved from the tanks (i.e., waste retrieved from the designated LAW stream) would be diluted with water so it could be pumped into a vessel."

24-19 The commentor is correct. The following revision was made in this *Final TC & WM EIS* to the referenced sentence in the Summary, Section S.3.1.4: "First, strontium nitrate would be added to the tank waste, causing sulfate to separate out



**Commentor No. 24 (cont'd): John Swanson**

stone" instead of "grout") of all the LAW (this is being done at other DOE sites). Another example is dissolving the sludge so that contained radionuclides could be separated from the inert elements – thus allowing a large reduction in the volume of HLW glass to be produced and disposed of).

- Why wasn't separation of cesium from salt waste by solvent extraction (instead of ion exchange), as is being implemented at Savannah River, considered here? (I imagine that the response might be along the lines that it was felt that the design of the WTP had proceeded too far to be changed; if so, that should be so stated).
- Section E.1.2.3.5.1 (E-67) describes how "Supplemental Waste Treatment Options" were evaluated and down-selected. I haven't seen similar discussion regarding the technologies listed in Section S.4.1.3.

) S-51 says "---the HLW melters would be stored on site. Thus, onsite disposal was eliminated from further consideration in this EIS."

- I don't follow the reasoning that onsite storage eliminates consideration of onsite disposal.
- I thought I read earlier (somewhere in this Summary) that the HLW melters would be disposed of as HLW. (It's in the Ecology contribution).

) I think you should delete the "and in Europe" from the sentence on S-55 regarding separation of waste into HLW and LAW streams. I know of no such activity in Europe – with (alkaline) wastes similar to those at Hanford, anyway.

) S-55 says "Full-scale production of ILAW using the bulk vitrification, cast stone, and steam reforming processes has not been conducted anywhere within the DOE complex."

- Shouldn't the vitrification technology planned for the WTP be included in this list (of things that haven't been operated on full-scale anywhere)? I don't know of any full-scale production of ILAW glass, and I'm pretty sure that there hasn't been any – given that Hanford is the only site planning to use that technology.
- I think (but am not sure) that Savannah River has done full-scale grouting (stone casting or cast stoning) of some of their salt wastes (but they use a different term for the process).

) S-87 says that the environmental findings discussed here are only for the drinking-water well user because "--- estimates of human health impacts for all types of receptors increase or decrease in proportion to those estimated for the drinking-water well user." Please say also how these estimated impacts compare in magnitude to those estimated for the impacts to the well user (are they "comparable to", "greater than", or "less than"?).

- A better reason to discuss only the well-water case would be if it were the (upper) bounding case? If it is, say so?

**24-21  
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**24-20**

as a strontium sulfate precipitate, then this resulting strontium sulfate precipitate would be immobilized in a grout waste form."

The commentor is correct, a small fraction of the technetium-99, approximately 0.5–0.9 percent of the BBI, was estimated to remain within the HLW stream under Tank Closure Alternatives 2A; 3A; 3C; 4; 5; 6B, Base and Option Cases; and 6C. The referenced sentence in the *TC & WM EIS* Summary, Section S.3.1.4, was revised to read as follows: "Under Tank Closure Alternatives 2A; 3A; 3C; 4; 5; 6B, Base and Option Cases; and 6C, the majority of the technetium-99 would remain in the LAW stream."

**24-21**

Section S.4.1.3 of the Summary was intended to summarize the waste treatment technologies initially considered but not analyzed in detail in this EIS. Appendix E, Section E.1.3.3, provides a more detailed discussion on the supplemental LAW treatment technologies identified for analysis in this EIS, as well as a summary of the Technology Readiness Assessment conducted by DOE in 2007.

In Appendix E, Section E.1.3.3.3.2, of this final EIS, a discussion was added concerning implementation of a cesium ion exchange process as an equipment option for the WTP. In summary, the design and construction of the WTP Pretreatment Facility had progressed too far for implementation of cesium separation by caustic-side solvent extraction when this technology was proven viable at the Savannah River Site. However, as described in Section E.1.3.3.3.2, it was considered as a potential supplemental pretreatment process in the 200-West Area for medium-curie tank waste. Continuation of the Pretreatment Testing and Demonstration Program in 2006 through 2008 resulted in the selection of ion exchange for cesium separation over caustic-side solvent extraction for pretreatment of the 200-West Area SSTs. Implementation schedules showed that a pretreatment system could be implemented approximately 2 years earlier if the ion exchange technology process was selected over the caustic-side solvent extraction process. Furthermore, the ion exchange capital and life-cycle costs were estimated to be significantly lower than the solvent extraction system costs.

**24-22**

The commentor is correct. This EIS assumes the HLW melters, as well as the IHLW, would be managed and disposed of as HLW and would be stored on site at Hanford until HLW disposition decisions are made and implemented.

The current Administration has established a Blue Ribbon Commission on America's Nuclear Future that has issued a report and recommendations for



**Commentor No. 24 (cont'd): John Swanson**

) Beginning with Figure S-14 (page S-88), there is a series of figures with the legend on the ordinate labeled “Radiological Risk (unitless)” – and the caption states that it is the risk to a “drinking-water well user”. However, in the box on the same page, “radiological risk” for an individual is “--- expressed as the probability over a lifetime of developing cancer.” There is an inconsistency here; if the values in the figures are indeed probabilities of developing cancers (as described in the box), the legend on the ordinate should so state; if the values in the figures are indeed unitless, description should be given as to how the unitless values were calculated.

- Discussions with officials during the “poster session” on January 26 led to agreement that the “unitless” label is incorrect.

) I believe that there should be some discussion here to compare the risks indicated in these figures to other risks – to put them in perspective (life is full of risks).

- It would help to put things in perspective by comparing the probabilities shown in these figures with the probability of developing cancer in the absence of the effect of the radionuclides. I don’t know what the probability of developing cancer “normally” is, but I’m sure that it’s MUCH greater than the ~2% probability shown in Figure S-14 as the highest risk to a well-water drinker from Hanford radionuclides.
  - o If, for example, the average American has a 50% probability of developing cancer in his/her lifetime, then one could say that the assumed well-water drinker would be 25-times more likely to develop cancer during his/her lifetime from “other sources” than from the radionuclides in the well water under tank closure Alternative 1. I believe it would be very helpful to put a statement such as that in the EIS.
    - Inclusion of a statement such as this might hopefully counteract some statements (e.g., “devastating impacts” and “severe cancer risks”) that were made during the “question period” at the January 26 meeting.

) Also, I don’t think it’s proper to say in the EIS, as is done on S-87, that continued storage would have “significant long-term impacts” – without describing what you consider to be “significant”. One value can be “significantly larger” than another without being “significant” (e.g., a debt of \$1 is significantly larger than a debt of \$0.01, but I don’t think that many people would consider that a debt of \$1 is significant).

) Along the same lines as the preceding comment(s), I don’t understand why “The analysis suggests that additional treatment or waste form development may be needed for secondary waste.” (S-90) when the maximum radiological risk shown in Figure S-15 would lead to a probability of only 0.001(0.1%) that a Hanford well-water drinker would develop cancer (from the Hanford radionuclides) in his/her lifetime – while the probability of that person developing cancer from other sources is perhaps 0.5(50%).

**24-26****24-23****24-24****24-27****24-25****24-26****24-28****24-27****24-28****24-29****24-29**

a path forward for managing the country’s HLW. DOE’s decisions regarding management of Hanford waste will be consistent with Administration policies. For a more comprehensive discussion of this topic, see Section 2.10 of this CRD.

Additional information regarding onsite storage of the HLW melters is included in Appendix E, Section E.1.2.4.4. For analysis purposes, this final EIS analyzes the impacts of safely storing the HLW melters and IHLW through the estimated operational timeframe for the WTP under each of the Tank Closure alternatives. See the foreword to this *TC & WM EIS* for Ecology’s discussion of melters.

The phrase “and in Europe” was deleted in this final EIS from the Summary and Chapter 2.

The commentor is correct. Treatment of LAW using a LAW melter has not been conducted on a full-scale production basis. In the *TC & WM EIS* Summary, Section S.5.2.1.3, as well as in Chapter 2, Section 2.7.4, the referenced sentence has been revised to read: “Full-scale production of ILAW using the LAW melter, bulk vitrification, cast stone, and steam reforming processes has....”

Additional text has been added to the *Final TC & WM EIS* Summary, Section S.5.5, explaining why the drinking-water well user was chosen for the key environmental findings.

The discussion of the units of risk has been clarified, as necessary, and consistent usage has been applied throughout this final EIS. The term “unitless” has been deleted from the figures in the Summary, Section S.5.5, Key Environmental Findings.

A discussion on risks associated with everyday life has been added to Appendix K, Section K.1.1.6, of this final EIS.

The “significant long-term impacts” referred to in the text are described in the rest of the section on Tank Farm Waste Retrieval, which has been edited for clarification.

Agencies regulate a much lower level of risk when a member of the public has no choice to accept risk. Protectiveness for carcinogens under CERCLA is set at levels that represent an upper-bound lifetime cancer risk to an individual of between 10-4 and 10-6; this level is deemed acceptable by EPA.

**Commentor No. 24 (cont'd): John Swanson**

) I am troubled by the sentence "The analysis indicates that ILAW glass with or without technetium-99 has similar potential short-term and long-term impacts." (S-91); I'm quite sure that the estimated long-term impacts of ILAW glass leachates are quite different with or without technetium-99.

- I think what is meant is that the systems analyzed here, with and without technetium in the ILAW glass, show similar impacts – not a comparison of ILAW glass alone.
- The last sentence of this section contains a qualifying statement (that other sources of technetium swamp the glass leachate source), but the structure of that sentence indicates that that qualification applies to the sentence following the one I object to.
  - o It would help some if the last sentence were to begin "These indications result because the rate ---" (as opposed to "This is because the rate ---"), but it would be better if the troubling sentence ("The analysis indicates --") were re-done so that it says what is meant.

) S-91 says "--- sulfate removal technology is evaluated after WTP pretreatment to ---." I would consider sulfate removal to BE a pretreatment step. I'm not sure what is meant here – maybe something like " --- sulfate removal is included as an added pretreatment technology to ---."?

- E-68 says "--- one pretreatment option, sulfate removal, ---."
- E-69 says "--- sulfate removal is also included --- as a pretreatment process outside the WTP." Combining this thought with that on E-91 indicates that the waste will be pretreated in the WTP, then sent outside the WTP for additional pretreatment, then sent back to the WTP for LAW immobilization; is that really the plan?

) The data in Figure S-18 appear to be identical to those in Figure S-14 – so why is S-18 included?

) I doubt the accuracy of the last sentence on S-96. What radiological constituents are thought to be orders of magnitude (which means more than a factor of 100) higher at Hanford than at other DOE sites (where fuel reprocessing was done)? Maybe you're comparing Hanford to sites that didn't do reprocessing (and thus wouldn't have large quantities of fission products)? Clarify the meaning/intent?

) Based on what is said on S-111 ("Offsite disposal costs for IHLW are not included in the cost data."), the title of Table S-13 ("--- Costs for Final Waste Form Disposal") should be changed – because offsite disposal costs for IHLW are most certainly final disposal costs.

- This also raises the question of why offsite disposal costs for IHLW were not included in the EIS? I know that some estimates were made years ago (and may well have been updated); they could be included here in this EIS "for comparative purposes", at least.

**24-30**

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**24-33**

**24-34**

The text in Section S.5.5.1 of the Summary has been revised in this final EIS to clarify that ILAW glass with and without technetium has similar impacts.

The commentor is correct. As discussed in Appendix E, Section E.1.2.3.9, the sulfate removal process would follow tank waste pretreatment in the WTP Pretreatment Facility. The sulfate-depleted LAW solution would then be returned to the WTP for evaporation and subsequent LAW vitrification. The discussion in the Summary is consistent with the text in Appendix E.

The purpose of Figure S–18 is to compare the impacts of the closure assumptions of the Tank Closure alternatives with the magnitude of long-term human health impacts. The purpose of Figure S–14 is to compare the degree of retrieval with the magnitude of long-term human health impacts.

Regarding the statement that select radioactive constituents at Hanford exist in amounts that are orders of magnitude higher than those at other DOE sites, the intent was to clarify that Hanford's waste releases from tank leaks and intentional discharges to the soil column far exceed waste releases to the environment at the three other DOE fuel-reprocessing sites: the West Valley Demonstration Project, the Savannah River Site, and Idaho National Laboratory (INL).

Please see response to comment 24-22 for information.

**Commentor No. 24 (cont'd): John Swanson**

- A rough “rule of thumb” used ~20 years ago was 0.5 million dollars per IHLW canister disposed of in a geologic repository. I doubt that that estimate has decreased in the intervening years; final disposal costs for IHLW could run into many billions of dollars – and would vary widely among the alternatives examined in the EIS. Shouldn’t that be discussed in the EIS?

) S-119 says that this EIS describes the INL environment. Why?

) E-42 says “HLW solids, strontium, TRU waste compounds, and cesium would be separated --.” Saying “TRU waste compounds” implies (to me, anyway) that the TRUs are present as (a) solids, and (b) relatively pure materials – and I don’t think the waste TRUs fit that description any more than does strontium. Why not say “--- strontium, transuranics (or, TRUs), and cesium - --.”?

On E-44 is “TRU waste components”; that is better than “TRU waste compounds”. Still, why not just “TRUs”?

Also on E-44, the term “TRU waste” is used to describe soluble TRUs. That is a very unfortunate choice of words, as “TRU waste” is commonly used to describe solid wastes that contain >10 nanocuries per gram of TRU alpha activity.

- I see “TRU waste” in this incorrect usage on E-69 and -71, too. More later, also.

) Also on E-42 is “The pretreated supernatant and permeate from the separations process ---.” Isn’t pretreated supernatant in fact permeate?

) I question the accuracy of saying (as on E-44) that evaporation of dilute feeds or dilution of concentrated feeds would dissolve soluble salts. Aren’t the soluble salts already dissolved?

) I don’t think you should use the term “entrained solids” to describe the feed to HLW vitrification – as is done on E-44 (under description for Envelope A and B feeds).

) E-46 says “---silver mordenite column (removes iodine-129 and volatile compounds) ---.”, which indicates that ALL volatile compounds are removed by silver mordenite – which isn’t true. Say instead “--- (removes volatile iodine compounds) ---.”?

Also, I’m surprised that there is provision for removal of iodine from the HLW melter offgas; I wouldn’t expect much iodine to be present there.

) E-47 says “--- glass formers would be added and blended to maintain the solids in suspension.” Shouldn’t it be something like “--- glass formers are added and the mixture is agitated to keep the solids in suspension.”?

**24-34  
cont’d**

**24-35**

**24-36**

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**24-41**

Chapter 3, Section 3.3, of this *TC & WM EIS* describes the existing environment at INL because FFTF Decommissioning Alternatives 2 (Entombment) and 3 (Removal) both include INL options for disposition of remote-handled (RH) special components (RH-SCs) and/or bulk sodium.

DOE agrees with the comment. Appendix E, Section E.1.2.3.1, page E-42, fourth paragraph, second sentence of the draft EIS, was revised to read: “HLW solids, strontium, transuranics, and cesium ....” On page E-44, the first bullet was revised. Also, on pages E-44, E-69, and E-71, the multiple uses of “TRU waste” were revised to read “transuranics.”

Pretreated supernatant could be permeate from the separations process. Both terms were used in this description to capture the general processes included in the WTP complex.

As used in Appendix E, page E-45, the term “soluble salts” describes salts that can be dissolved, not salts that are already dissolved (salts that cannot be dissolved are called “insoluble salts”). No change to this EIS is required.

The term “entrained solids” was quoted from a referenceable and reliable source (BNI 2005). This term generally describes solids that are carried along with liquid waste streams. No revision of this EIS is required.

As stated in the referenced document (BNI 2005), the silver mordenite columns would remove both elemental and organic iodine and other halogens (such as chlorides and fluorides) in the form of hydrochloric acid and hydrofluoric acid. Therefore, the referenced sentence in the draft EIS was revised in this final EIS by replacing the term “volatile compounds” with the term “other halogens.”

In this final EIS, the referenced sentence in Appendix E, Section E.1.2.3.1.3, was revised to read: “Batches of concentrated LAW feed would be transferred from these vessels to melter feed preparation vessels, where glass formers would be added and blended to form a uniform batch for the LAW melter.”

**Commentor No. 24 (cont'd): John Swanson**

3-70

) One of the paragraphs on E-47 is structured strangely; it speaks of the canisters being sealed and decontaminated before it speaks of sampling and filling if necessary. Delete the first sentence?

24-42

) Another confusing paragraph on E-47 regards offgas treatment. Among other things, it speaks of removing nitrogen oxides, carbon monoxide, and VOCs – and then speaks of oxidizing or reducing those materials. Re-work it?

24-43

) E-50 speaks of “--- dewatering (using ion exchange resins) ---.” I think that should be “used”, not “using”.

24-44

) E-51 speaks of secondary solid waste from the HLW vitrification facility as being RH. I think that some/much of this waste will also be TRU, and thus, would not be “disposable” in an IDF. Will WIPP accept RH-TRU by then? Will additional storage facilities be needed at Hanford? Won’t the waste have to be assayed to see if it’s TRU? Address these points?

24-45

) E-52 says “--- some of the select radionuclides to emit offgas ---.” That’s very poor. Say something like “--- volatilization of portions of some radionuclides ---.”

24-46

) E-53 says “The amount of sodium processed influences --- the amount of IHLW and ILAW product.” That may not be a completely incorrect statement, but it is certainly misleading – as the “influences” are very different. While increases in sodium usage will increase the amount of ILAW, they can decrease the amount of IHLW (till a limiting value, below which additional leaching is ineffective, is reached).

24-47

) Several comments on the first “bullet” on E-54:

- Now says “Sodium is added ---to solubilize aluminum.” Should say ‘Sodium hydroxide is added ---.’
- Now says “--- disposed of as LLW.” Shouldn’t that be LAW?
- Sodium hydroxide recycle is mentioned as a possible technology to minimize the impact of added sodium. That technology was being investigated for this purpose 10-15 years ago; why was it dropped?
- I don’t understand how “treating or separating the aluminum within the tank waste prior to sending it to the WTP.” will decrease the amount of sodium – unless the leach solutions would then not pass through the WTP (if that is the case, say so).
  - o I’m assuming you mean “within the waste tank” instead of “within the tank waste”.

24-48

) Second bullet on E-54:

- Says “--- more sodium may be required to limit the number of IHLW glass canisters produced.” Better to say something like “--- to give an acceptably low number of IHLW glass canisters.”?

24-49

9

24-42 DOE reviewed the subject paragraph in the draft EIS, Appendix E, Section E.1.2.3.1.3, and sees no need to restructure the paragraph.

24-43 DOE reviewed the subject paragraph in the draft EIS, Appendix E, Section E.1.2.3.1.3, which was quoted from BNI 2005, and believes it to be technically correct.

24-44 The commentor is correct. In this final EIS, the word “using” was changed to “used” in Appendix E, Section E.1.2.3.1.5, Secondary Solid Waste.

24-45 For analysis purposes, this *TC & WM EIS* assumed that no TRU waste would be generated by WTP operations. While a small inventory of TRU solid secondary waste may be generated during WTP operations, this EIS assumed that none would be generated. The reasons for this assumption include: (1) DOE has no operational experience with the WTP HLW Vitrification Facility; (2) operational experience at other DOE vitrification sites indicates little or no TRU waste generation; and (3) for analysis purposes, it was necessary to cap the potential environmental impacts in this EIS by assuming the maximum radioactive and chemical inventories in the IDF(s). Therefore, for analysis purposes, DOE assumed that all solid secondary waste generated from the WTP would meet the *Hanford Site Solid Waste Acceptance Criteria* for LLW or MLLW and would be disposed of in an IDF. As discussed in Appendix E, Section E.1.2.3.1.5, any secondary TRU waste generated would be managed by existing or modified Hanford TRU waste facilities (e.g., the Waste Receiving and Processing Facility). In such cases, the waste would be examined and its waste type confirmed according to established procedures. If the waste were TRU waste, it would be disposed of at WIPP, which is currently accepting RH-TRU waste.

24-46 The referenced sentence in Appendix E, Section E.1.2.3.1.7, was revised in this final EIS to read: “The high temperatures associated with the ILAW process would cause volatilization of some of the select radionuclides, emitting offgases that would ultimately be captured in secondary-waste streams.”

24-47 DOE reviewed the referenced sentence in the draft EIS, Appendix E, Section E.1.2.3.1.7, and sees no reason to revise it. It is technically correct and is not considered misleading.

24-48 The following revisions were made in this final EIS, Appendix E, Section E.1.2.3.1.7, to the fourth bullet: (1) third sentence: “hydroxide” was added after “Sodium”; (2) fifth sentence: “LLW” replaced with “LAW”; (3) sixth sentence: “LLW” replaced with “LAW”; (4) eighth (last) sentence: “LLW” replaced with “LAW,” and changed “tank waste” to “waste tank.”

**Commentor No. 24 (cont'd): John Swanson**

- What is the basis for the 90,000 MT value? That apparently must result from additions of 42,000 MT during pretreatment, which is a factor of 3.5 greater than is currently assumed. Is the “design basis flowsheet” really that uncertain??? A sad commentary if it is.

**24-49  
cont'd**

) Fourth bullet on E-54: I don't understand how allowing an increase in viscosity ensures that the glass will flow better. (I would think the opposite, but I'm not expert in this area.)

**24-50**

) Some of the information in Section E.1.2.3.5.2 came as a surprise to me; I don't believe it was mentioned in the Summary, and feel that it should be. For example:

- The concurrence of the NRC that “--- the recovery of waste containing <0.05 curies per liter of cesium-137 was not economically practical ---.”
  - o I don't think that “recovery” should be the operative word here. “Removal of cesium from waste containing ---” instead?
  - o I remember the Summary discussing the decision that technetium removal wasn't necessary, but I don't remember any discussion there about cesium removal not being necessary if the concentration in the feed is below a certain level.

**24-51**

) E-69 says “At this concentration of cesium, no more than 5 million curies of cesium-137 would be disposed of in the ILAW glass.” I feel that this can be misleading (it can be taken to mean that the total amount of ILAW glass will contain no more than 5 million curies of cesium). What is meant, I think, is that not separating cesium from the sodium that is in these 35 tanks would result in the addition of no more than 5 million curies of cesium-137 to the ILAW glass.

**24-52**

) E-83 says “Temporary storage of a 5-molar sodium cast stone feed solution at maximum throughput rates for 5 months would require the use of two DSTs.” – BUT E-85 says that the tanks used for this purpose would be 30,000-gallon tanks. Aren't the existing DSTs 1,000,000-gallon tanks? Using the term “DSTs” to describe 30,000-gallon tanks is misleading.

**24-53**

) E-89 says “--- sodium molarity of 2.9 molar, or approximately 50 percent water content.” That is poor wording; I'm sure that a 2.9 molar sodium nitrate/hydroxide solution contains more than 50% water (A 3 molar sodium nitrate solution contains 78% water).

**24-50**

- This incorrect statement is also present in many other places in this section.

**24-54**

Also, the next sentence says that this dilution is required to transform the feed into a pumpable liquid. Other technology descriptions have talked of much more concentrated feed solutions; weren't they pumped? Give some other reason for this 2.9 molar concentration?

) E-90 uses the term “soluble carbon reductant (sucrose)”; that strikes me as being a bad term. For one thing, it can be taken to mean that carbon is the thing that is being reduced (which isn't the case). How about saying something like “--- including a soluble carbon-containing reducing

**24-55**

**24-51**

DOE continues to review the benefits and costs of implementing sodium hydroxide recycling. For example, in 2009, DOE reviewed the feasibility of constructing an Aluminum Removal Facility, which would use a lithium hydrotalcite process and would provide caustic leaching and sodium hydroxide recycling in a standalone facility. Processing in such a facility would occur before waste processing in the WTP Pretreatment Facility, which would reduce the demand on the WTP. More recently, DOE has been evaluating other options to effectively blend and characterize tank waste prior to transfer to the WTP, such as the addition of an Enhanced Waste Receiver Facility. This process, along with the cesium ion exchange process, could allow a 40 percent waste oxide loading into ILAW glass.

DOE reviewed the referenced sentence in Appendix E, Section E.1.2.3.1.7, the fifth bullet, and determined that no revision is necessary. The estimate of 90,000 metric tons was evaluated by DOE during preparation of this EIS and was presented to show a range of the potential impacts that the additional sodium may have on the ILAW volume. As presented in the second bullet in this same section, this EIS assumes that the WTP would process 60,000 metric tons of sodium, including approximately 48,000 metric tons within the tank waste and 12,000 metric tons that would be added during pretreatment. Thus, if the total sodium processed reached 90,000 metric tons, the 12,000 metric tons added during pretreatment would increase by 30,000 metric tons to 42,000 metric tons.

The increase in the allowable viscosity from 5.5 to 10 pascal-seconds supports better control of the HLW melter by lessening excessive convection currents, which decreases corrosion/erosion of the melter materials of construction (the refractory and electrodes). In contrast, a high viscosity can reduce canister quality by causing voids in the final glass waste form. The referenced sentence was revised in this final EIS to read as follows: “The maximum allowable viscosity of the IHLW glass was increased from 5.5 pascal-seconds to 10 pascal-seconds to reduce excessive convection currents during melting operations, thereby reducing corrosion/erosion of the melter materials and achieving better overall control of the HLW melter.”

A review of the use of the word “recovery” determined that it should not be replaced, but the sentence should be revised to clarify its meaning. The sentence was revised in this final EIS as follows: “The designation of the contents of the 35 tanks listed in Table E-8 as LAW is based on the analysis found in the *Technical Basis for Classification of Low-Activity Waste Fraction from Hanford*



**Commentor No. 24 (cont'd): John Swanson**

agent (sucrose), referred to here as “carbon reductant”, and a ----”? Then it would be clear what “carbon reductant” means.

Same problem is in the next paragraph, where I see “carbon reduction reformer” and “carbon reduction fluid bed” (the upper part of which is run under oxidizing conditions to oxidize residual “carbon reductants and organics” [note that the so-called “carbon reductant” IS an organic compound; it would be better to say “waste-contained organics”).

- Also see “residual carbon reductants and organics” on E-94.

There seems to me to be a lot of “engineering jargon” in this section. I assume/hope that it makes sense to the people who are familiar with this technology – but it’s not really technically accurate, which makes it confusing to others.

) E-91 says “--- oxygen would be injected to oxidize the gaseous constituents more fully.” That implies that some oxidation of gaseous constituents occurs earlier, which I don’t believe is the case. Also, it’s not the reason given on E-90 for the oxidizing zone.

) On E-100, why would the filtrate from the sulfate precipitation step be neutralized (thereby adding sodium – and increasing the volume of ILAW)?

) Are the fractions of TRUs that are present in the sulfate precipitate large enough to make the precipitate a “TRU waste”? If so, wouldn’t it have to go to WIPP (vs EDF)?

) I don’t believe that “--- reducing the sodium content of the waste stream being directed back to the WTP process.” would “--- increase the waste loading in the WTP LAW melters.” – as is said on E-169. Reducing the amount of sodium being directed back to the LAW melters would decrease the load on the melters, though.

) E-169 says “The fractional crystallization process was not evaluated in detail because of the lack of available data demonstrating the process on actual tank wastes.” I think a “double standard” is being applied here; I believe that there are technologies included in the proposed WTP process that are based on fewer “data demonstrating the process on actual tank wastes” than are available for fractional crystallization.

) Page E-171 says “The key problem identified would be achieving an immobilized waste form for the crystallized sodium nitrate ---.” How about adding water and “cast stoning” it? (That should make the problem equivalent to that in the “cast stone” alternative)

**24-55  
cont’d**

**24-56**

**24-57**

**24-58**

**24-59**

**24-60**

**24-61**

**24-52**

*Site Tanks*, which stated that waste containing less than 0.05 curies per liter of cesium-137 was not economically practical for recovery.”

DOE has reviewed the text in question and agrees with the commentor regarding the need for clarification. In this final EIS, the second sentence in the second paragraph in Appendix E, Section E.1.2.3.5.2, was revised to read as follows: “At this concentration, not separating additional cesium-137 from the waste in the 35 tanks would result in the addition of no more than 5 million curies of cesium-137 in the ILAW glass.”

**24-53**

Appendix E, Section E.1.2.3.7.2, describes the dissolved salt storage tanks and the temporary storage requirements for use of two DSTs. These are not the same tanks; the first set of tanks includes the two 30,000-gallon receipt tanks, depicted as “Receipt storage” tanks in Figure E-18. The second set consists of DSTs (1 million- to 1.16 million-gallon tanks) that may be used for temporary storage of the cast stone feed. Appendix E, Section E.1.2.3.7.4, Low-Activity Waste Receipt, Conditioning, and Storage Systems, describes only the two 30,000-gallon dissolved salt cake storage tanks that are part of the Cast Stone Facility. The DSTs are not described as 30,000-gallon tanks. No change in this EIS is deemed necessary.

**24-54**

DOE has rechecked the references cited in Appendix E, page E-89, of the draft EIS and confirmed that the wording used in this EIS correctly reflects the wording in the references. Therefore, no revisions were made to the text in this final EIS.

**24-55**

To clarify the first use of the term “soluble carbon reductant (sucrose),” on page E-94 of Appendix E, Section E.1.2.3.8.2, of this final EIS, “soluble carbon reductant (sucrose)” was revised to read “soluble, carbon-containing reducing agent (sucrose), referred to in this EIS as a ‘carbon reductant.’” The additional uses of “carbon reduction” or “carbon reductants,” as mentioned by the commentor, are considered standard terms within the industry and their use was continued in this EIS.

**24-56**

DOE sees no inconsistency between the fifth bullet in Appendix E, Section E.1.2.3.8.2, and the discussion in the previous paragraph. The second paragraph of this section states that oxygen is injected into the upper zone of the carbon reduction reformer to complete the destruction of nitrogen compounds, which was partially achieved in the denitration and mineralization reformer vessel. The fifth bullet states that oxygen would be injected into the carbon reduction reformer to oxidize the gaseous constituents more fully (and to

**Commentor No. 24 (cont'd): John Swanson**

- complete the destruction of nitrogen compounds). The purpose of oxidizing this zone would be to convert residual carbon reductants and organics into carbon dioxide and water vapor.
- 24-57** The filtrate from the sulfate precipitation step is acidic and needs to be neutralized prior to its transfer to the WTP for vitrification in the LAW process. As discussed in Appendix E, Section E.1.2.3.9.1, prior to the precipitation process, the solution is adjusted to a pH of 1.0 by adding nitric acid.
- 24-58** Based on available testing data, this EIS assumes that the strontium sulfate precipitate is an LLW or MLLW form that would comply with IDF waste acceptance criteria. However, this assumption is based on limited information, as discussed in Appendix E, Section E.1.2.3.9.4. If the concentrations of TRU radionuclides meet the TRU waste definition, then the commentor is correct—the waste would be packaged to meet the WIPP Waste Acceptance Criteria and would be disposed of at WIPP. As stated in Section E.1.2.3.9.4, significant amounts of select radionuclides (e.g., TRU waste, cesium) would be removed within the WTP Pretreatment Facility prior to the waste being introduced into the Sulfate Removal Facility. This is expected to reduce the amount of radionuclides that could be of concern during the sulfate removal process.
- 24-59** The statement as written is correct. Reducing the sodium concentration in the waste stream would allow a higher waste load in the LAW melters and, therefore, a higher waste load in the final (ILAW) waste form. A discussion of the potential effects of sodium on IHLW and ILAW volumes is included in Appendix E, Section E.1.2.3.1.7, of this EIS.
- 24-60** As noted by the commentor, Appendix E, Section E.1.3.3.3.2, states that the fractional crystallization process was not evaluated in detail due to a lack of available data demonstrating this process on actual tank waste at the time of this EIS's preparation. DOE recognizes the commentor's concern, however, and this technology remains under study. Section E.1.3.3.3.2 of this final EIS includes an update of the latest information on fractional crystallization. In summary, based on the testing data available as of 2008, DOE selected ion exchange for cesium separation instead of caustic-side solvent extraction and fractional crystallization because the earliest possible deployment of this pretreatment system could be achieved using the ion exchange technology. Additionally, ion exchange capital and life-cycle costs were estimated to be significantly lower than those of fractional crystallization. Therefore, only limited testing of fractional

**Commentor No. 24 (cont'd): John Swanson**

**24-61**

crystallization will continue for the purpose of ensuring an alternate cesium removal technology that can provide a waste feed supply to the WTP.

As the commentor suggests, the addition of water may be a solution to meeting disposal requirements; however, additional flowsheet and waste characterization data are not available at this time. Therefore, this technology was not analyzed further in this EIS.



**Commentor No. 25: Deanne Belinoff**

**From:** Deanne Belinoff [deanne@xpirt.net]  
**Sent:** Friday, January 29, 2010 1:30 PM  
**To:** tc&wmeis@saic.com  
**Subject:** dumpstie -pacific northwest

NO RADIOACTIVE DUMPSITE AT HANFORD....will to work this issue.  
 deanne belinoff

|| 25-1

25-1

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

**Commentor No. 26: Mary Duvall**

**From:** Mary Duvall [rover@clatskanie.com]  
**Sent:** Friday, January 29, 2010 8:28 PM  
**To:** tc&wmeis@saic.com  
**Subject:** Clean up Hanford, Please

Mary Beth Burandt  
 Document Manager  
 U.S. Department of Energy  
 Office of River Protection  
 P.O. Box 1178  
 Richland, WA 99352  
 Fax: 888-785-2865  
 Email: TC&WMEIS@saic.com

Dear Ms. Burandt:  
 I live downriver from Hanford, in the lower Columbia area, Clatskanie specifically. I urge DOE to :

- 1) Clean up all 55-million-gallons of radioactive + hazardous tank waste with over 99% retrieval
- 2) Drop the proposal to ship radioactive wastes, and any other hazardous wastes, from across the nation to Hanford
- 3) Clean up the millions of gallons of nuclear waste that has already leaked + is reaching the Columbia

The Columbia is an amazing, huge waterway, connected to Canada and the ocean. It is the habitat of the great salmon, as well as the habitat of fishermen, elk, the ancient sturgeon, deer, raptors, frogs, an irreplaceable diversity of life, already damaged by pollution of many kinds, including leaching nuclear waste. Humans have no right to destroy the environment, to foul the nest in the quest for money, power, and the unrelenting replication of their own offspring. We must understand the limits of nature to adapt to the concept of "waste". We must learn how to use and recycle or not use, if we cannot figure out how to detoxify leftovers. We must push back against the forces that would destroy all that is good and healthy and beautiful in their lust for More, more, more, bigger, faster, and MORE.

26-1

26-2

26-3

26-1

The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the *TC & WM EIS* analyses. These include Tank Closure Alternatives 4, 6A, and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all or part of the SST system. DOE's preferred retrieval option (i.e., to retrieve at least 99 percent of the tank waste) is consistent with the TPA goal of residual waste not exceeding 10.2 cubic meters (360 cubic feet) for 100-series tanks or 0.85 cubic meters (30 cubic feet) for the smaller 200-series tanks, corresponding to 99 percent retrieval.

Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

26-2

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

26-3

DOE recognizes that groundwater contamination from past leaks is a concern at Hanford and its potential impact on communities downriver from Hanford. One of the purposes of this *TC & WM EIS* is to analyze potential impacts of DOE's proposed actions to retrieve waste from the buried tanks, treat and dispose of this waste, and close the SST farms in order to prevent further contamination from entering the environment. This analysis is also intended to aid DOE in making decisions regarding cleanup of the past leaks. The TPA, a legal agreement between DOE, Ecology, and EPA, identifies cleanup actions and schedules, called milestones. The TPA agencies completed negotiations on several Hanford cleanup projects, including the establishment of 29 additional and/or accelerated groundwater and Columbia River protection milestones and target dates.

**Commentor No. 26 (cont'd): Mary Duvall**

The river is a great flowing goddess who can give life, joy, hope----a future---or she can be destroyed because she is vulnerable---she is just there, awesome, beauty beyond beauty. It is our job to love her and protect her, keep her clear, clean, alive, and safe.

26-3  
cont'd

Please help.  
Thank you.  
Mary Duvall  
73151 Lost Creek Road  
Clatskanie, Oregon  
97016

*Response side of this page intentionally left blank.*

Commentor No. 27: Don Stephens

**From:** shreddad [shreddad@gmail.com]  
**Sent:** Sunday, January 31, 2010 8:54 PM  
**To:** tc&wmeis@saic.com  
**Subject:** Clean up Hanford - Don't make it a national waste dump

Dear Decision Makers:

I am writing to urge you to stop use of Hanford as a national waste dump. Also, I oppose USDOE's plan to abandon the contamination that has leaked from the High-Level Nuclear Waste Tanks even as it is spreading rapidly towards the Columbia River.

Thank You.

Don Stephens  
908 SE Cora  
Portland, OR 97202

|| 27-1  
|| 27-2

27-1

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

Although different aspects of the Hanford environment (e.g., vadose zone or groundwater) may be regulated under different state and Federal statutes, the TPA agencies (DOE, Ecology, and EPA) coordinate their respective activities. Further, DOE included ongoing and planned remediation actions regarding existing contamination in the cumulative impacts analysis of this final EIS.

27-2

This contamination has not been abandoned. Regarding the status of groundwater contamination and remediation at Hanford, groundwater remediation activities, as required under RCRA, CERCLA, and/or the TPA, are in various stages of assessment, risk-based end-state development, corrective action, and/or active remediation. For a more comprehensive discussion of remediation at Hanford, see Section 2.3 of this CRD.

**Commentor No. 28: Valerie Shubert**

**From:** Valerie Shubert [treraia@gmail.com]  
**Sent:** Monday, February 01, 2010 4:00 AM  
**To:** tc&wmeis@saic.com  
**Subject:** Draft TC&WMEIS Comments, pt II

Some additional comments, after having read part of the summary:

First, a grammatical quibble. The plural of 'right-of-way' is 'rights-of-way, not 'right-of-ways'. Please correct this wherever it occurs.

28-1

Second, it appears that there're plans afoot to keep several facilities open 24 hours. To make this functional, several steps have to be taken: {(a) Seek out and hire (where possible) people who are naturally nocturnal. Such people exist, and will work better in these shifts. This means things like holding interviews, meetings, etc when nocturnal people can make them, not during 'business hours'. (b) Provide accommodations for employees working at night. This includes (but is not limited to): Adequate lighting which is not dazzlingly bright; mass transit that runs all night; break rooms, food service, bathrooms, etc that are available 24 hours; etc. It should go without saying that emergency services, medical services, at least some contact with administrators, etc would also be available 24 hrs/day, but my experience is that it does not go without saying, so I'm saying it.}

28-2

Third, I've pointed out before that surveys of things like archaeological sites can be done via aerial and/or satellite photos. If no current photos exist, old photos are adequate, unless they have faded over time.

28-3

This is all for the present: I will have more comments later. I repeat the caveat that the comment period is too short: but I will try to get comments in when and as I can.

28-4

Valerie Shubert  
 1420 Western, #409  
 Seattle, WA 98101

28-1

The grammatical error in the text box in the draft Summary, Section S.5.5.1, page S-108, has been corrected to "rights-of-way." A global search has been performed in this final EIS, and any additional occurrences have been corrected.

28-2

Throughout Hanford's history, there have been operations requiring 24-hour-per-day work. DOE would ensure that future shift work continued to comply with applicable labor regulations for providing a safe work environment, such as those of Occupational Safety and Health Administration (OSHA) and the Washington State Department of Labor and Industries. Safety and ergonomic considerations specific to night shift work would be based on Hanford's past operational experience and worker input.

28-3

Archaeological site surveys referenced in this EIS contain data from various research documents. Many of these surveys do contain photos of the sites. While aerial photos are a part of the surveys, cultural resource specialists directly surveyed the areas potentially affected by proposed project activities.

28-4

The public comment period was extended by another 45 days, for a total comment period of 180 days.

Commentor No. 29: John Wood

**From:** John Wood [unclebob@gorge.net]  
**Sent:** Monday, February 01, 2010 4:38 PM  
**To:** tc&wmeis@saic.com  
**Cc:** Columbia Riverkeeper  
**Subject:** Hanford Cleanup: You cannot store waste in a bucket with a hole in the bottom.

Mary Beth Burandt  
Document Manager  
U.S. Department of Energy  
Office of River Protection  
P.O. Box 1178  
Richland, WA 99352  
Fax: 888-785-2865  
Email: [TC&WMEIS@saic.com](mailto:TC&WMEIS@saic.com)

Dear Ms. Burandt,

My opinion and my desires on the Hanford cleanup are exactly what is proposed by Columbia Riverkeeper. You have no business trying to “store” waste in a bucket with a hole in the bottom. Especially if that waste is radioactive and draining into an enormous river headed for irrigation users and cities and the ocean. It is like peeing in a sock over a precious carpet. Nobody decent does it.

- 1) Clean up all 55-million-gallons of radioactive and hazardous tank waste with over 99% retrieval.
- 2) Drop the proposal to ship radioactive wastes from across the nation to Hanford.
- 3) Clean up the plume of millions of gallons of nuclear waste that has already leaked and is reaching the Columbia River.

It is true that man may “need” to resort to nuclear power in the future, but even coal is cleaner in the long run than spent but still radioactive nuclear fuel. Coal will spontaneously REFORM before nuclear waste emissions recede to background levels.

Thanks for your time,  
John Wood  
Hood River, Oregon

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All 29 SSTs have now been interim-stabilized, and all work required to be performed under the Interim Stabilization Consent Decree (No. CT-99-5076-EFS, September 30, 1999, as amended) has been completed and confirmed. As a result, the court granted the joint motion to terminate the Consent Decree on March 8, 2011.

Regarding the status of groundwater contamination and remediation at Hanford, groundwater remediation activities, as required under RCRA, CERCLA, and/or the TPA, are in various stages of assessment, risk-based end-state development, corrective action, and/or active remediation. For a more comprehensive discussion of remediation at Hanford, see Section 2.3 of this CRD.

The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the *TC & WM EIS* analyses. These include Tank Closure Alternatives 4, 6A, and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all or part of the SST system. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this *Final TC & WM EIS* is published in the *Federal Register*.

Regarding the commentor’s concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

DOE recognizes that groundwater contamination from past leaks is a concern at Hanford and its potential impact on communities downriver from Hanford. One of the purposes of this *TC & WM EIS* is to analyze potential impacts of DOE’s proposed actions to retrieve waste from the buried tanks, treat and dispose of this waste, and close the SST farms. This analysis is also intended to aid DOE in making decisions regarding cleanup of the past leaks. The TPA, a legal agreement between DOE, Ecology, and EPA, identifies cleanup actions and schedules, called milestones.

Commentor No. 30: Sheryl Paglieri

1-31-10

To : Mary Beth Burandt, EIS Document Manager

Dear Mary Beth,

The No action alternative should be the preferred alternative for the FFTF in the Degrat Tank Closure and Waste Management EIS. Entombing the FFTF would be a huge waste of taxpayer money. The FFTF should be kept for possible future use.

Yours truly,  
Sheryl D. Paglieri, retired teacher

Mead

30-1

30-1

DOE issued a ROD (66 FR 7877; January 26, 2001) for the *NI PEIS* (DOE 2000a) wherein DOE announced its decision that FFTF would be permanently deactivated. As discussed in Chapter 1, Section 1.4.2, Decisions Not to Be Made, DOE is not considering restarting FFTF, only decommissioning it. Thus, regardless of the alternative selected (including No Action), FFTF would not be available for future use.

Commentor No. 31: James Paglieri

3-82

Jan. 30, 2010

Mary Beth Burandt, EIS Document Manager  
DOE Draft TC & WM EIS Comments  
Office of River Protection  
PO Box 1178  
Richland, WA 99352

Dear Mary Beth Burandt, EIS Document Manager,  
The No Action Alternative should be the preferred Alternative for the FFTF. The investment in the FFTF physical plant exceeds one billion dollars. The FFTF should not be entombed but should be preserved for various possible future missions, including restart. Since shutdown of the FFTF there has been increasing needs for fast neutron testing of materials (as noted by the present head of the DOE, Dr. Transmutation of nuclear waste (with the decision to not use Yucca Mountain), increased demand for medical isotopes (e.g. the recent crisis with Molybdenum-99 supply), and the inadequate supply situation for Plutonium-238, use in space missions.  
If FFTF restart does not materialize, the facility should be preserved for other reasons. For example, future nuclear or non-nuclear work that needs a containment building or that would use the tallest hot cell outside of Russia could be utilized. If no future use arises, the FFTF should become a nuclear museum and library, emphasizing the history of fast reactors and covering the development of nuclear power. For example, the museum could cover the number of awards that the FFTF received and the number of records that FFTF set, including a world record for the maximum amount of nuclear fuel exposure. FFTF could preserve fast reactor related documents/information and could become a favorite stopping place for the numerous visitors to the B-Reactor Museum.  
In conclusion, the No Action Alternative for the FFTF is very highly recommended.

Sincerely,  
James M. Paglieri, Retired Nuclear Safety Engineer  
James N. Paglieri  
1734 Horn Ave.  
Richland, WA 99354-2314

31-1

31-1

Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this Final TC & WM EIS is published in the Federal Register.

31-2

DOE issued a ROD (66 FR 7877; January 26, 2001) for the NI PEIS (DOE 2000a) wherein DOE announced its decision that FFTF would be permanently deactivated. As discussed in Chapter 1 of this TC & WM EIS, Section 1.4.2, Decisions Not to Be Made, DOE is not considering restarting FFTF. The scope of this TC & WM EIS is to address the final decommissioning of FFTF. As addressed in Chapter 2, Section 2.6, DOE does not consider use of FFTF as a museum a reasonable alternative due to the radiological and unique chemical hazards associated with the facility, the age of the buildings, and the lack of a financial sponsor.

31-2

31-1  
cont'd



**Commentor No. 32: Fred Mann**

**From:** Fred Mann [FredMMann@charter.net]  
**Sent:** Thursday, February 04, 2010 4:18 PM  
**To:** tc&wmeis@saic.com  
**Subject:** Comments on the Draft TC & WM EIS  
**Attachments:** Comments on Tank Closure EIS.docx

For more information, contact Fred Mann  
email: FredMMann@charter.net  
phone: (xxx)xxx-xxxx.

*Response side of this page intentionally left blank.*

**Commentor No. 32 (cont'd): Fred Mann**

Comments on Tank Closure, FFTF, and Waste Management EIS - Fred Mann  
Dec. 10, 2009

**Key Comments**

1. Purpose of comments
  - A. Improve information for decision makers
  - B. Correct standard for Hanford
  - C. Improve readability
- 2.(A) Data/methods used are briefly described, but there is no discussion of why such data/methods are appropriate. Need to explain why they are appropriate. An example is inventory where the BBI is described as the official estimate. **Suggested change: Describe why data/methods used are appropriate.**
- 3.(A) As most data come from 2002/2003, explain how newer data/methodology would affect results. For example, the discussion on updated Best Basis Inventory showed the large change in inventory. **Suggested change: Present a discussion on how more recent data would qualitatively affect the analysis performed.**
- 4.(A) Separate cases that do not change from those cases where alternatives are given (e.g., off site waste, releases from near-by facilities). Because the impacts of the non-changing cases are much larger the cases having alternatives, the impacts of the alternatives cannot not be inferred by the reader. **Suggested change: Present the non-changing cases separately from the non-changing cases.**
  - i. Most significant sources in many alternatives are cribs/trenches, past leaks, and offsite waste. Yet there are no alternatives no these sources. Thus, alternatives show large impacts as major sources are not reduced. **Suggested change: Provide alternatives for Cribs/trenches, past leaks, and offsite waste.**
  - ii. Cribs/trenches. These facilities are separate from the tank farms and are managed by a different office. Although they may be covered by a barrier that also covers tank farms, they may not. **Suggested change: include cribs/trenches as part of cumulative analyses (as obviously they will have a large impact) but not in alternatives analysis. If cribs/trenches are kept as part of the alternatives analysis, include two alternatives: 1) clean closure (in analog with clean closure of tank farms) and 2) pump and treat groundwater (which is the current plan being implemented by DOE Richland Operations Office).**
  - iii. Past leaks. An alternative is presented (clean closure). However, Hanford DOE's plan (and is presently being implemented around the T, TX, and TY Tank Farms) is pump and treat of groundwater. **Suggested change: The pump and treat**

32-1

32-2

32-3

32-4

- 32-1 This *TC & WM EIS* was prepared in accordance with NEPA, as amended (42 U.S.C. 4321 et seq.); DOE implementing procedures for NEPA (10 CFR 1021); and CEQ "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act" (40 CFR 1500-1508). Methods for assessing environmental impacts for each resource area are discussed in Appendix F of this EIS. Inventory development is discussed in Appendices D (alternatives) and S (cumulative impacts). The 2002 BBI estimate was reviewed by ORP; DOE-RL; DOE Office of Health, Safety, and Security; DOE-EM; DOE Office of the General Counsel; and Ecology in 2005. The conclusion then, and now, is that the 2002 BBI is appropriate for the analysis in this *TC & WM EIS*.
- 32-2 DOE's decision to use the 2002 BBI for tank waste inventory data is based, on part, the results of a 2005 ORP; DOE-RL; DOE Office of Health, Safety, and Security; DOE-EM; DOE Office of the General Counsel; and Ecology review of the 2002 BBI estimates. Regarding the commentor's concern as to the usage of older data when newer data are available, DOE reexamined the inventories used in this *Final TC & WM EIS* and determined that the best-available data were used in the analysis, with the understanding that uncertainty still remains. For a more comprehensive discussion of this topic, see Section 2.2 of this CRD.
- 32-3 The agency does not agree with the suggested approach for organizing the alternatives. DOE believes that the impacts of cribs and trenches (ditches), past leaks, and offsite waste can be distinguished among the alternatives as presented. To provide additional clarification on the potential impacts of past leaks, cribs and trenches (ditches), and offsite waste under each of the alternatives, DOE has revised the key environmental findings sections of the *TC & WM EIS* Summary (Section S.5.5) and Chapter 2 (Section 2.10) to provide more description and discussion of these impacts.
- 32-4 The clean closure alternatives considered for the SST system are represented by the Base and Option Cases of Tank Closure Alternatives 6A and 6B. For both Base Cases, the assumption is that the SST system would be cleaned to levels that would allow for unrestricted use, which would involve removal of the tanks, ancillary equipment, and soils beneath the tanks (contaminated as a result of past leaks) down to the water table. The two Option Cases represent this type of clean closure along with removal of soils beneath the tank farms (contaminated as a result of the contiguous cribs and trenches [ditches]). The analysis shows that removal of the contaminants from the vadose zone would not capture the

**Commentor No. 32 (cont'd): Fred Mann**

alternative being implemented by Hanford DOE should be considered as part of the EIS.

- iv. Off-site waste. The only case analyzed in the EIS is for the disposal site to start receiving waste in 2009. However, the preferred alternative is not to receive offsite waste until the Waste Treatment Plant (WTP) is operational (~2020). Given the discussion of inventory in the text, at least half of the off-site waste will be disposed prior to this time. **Suggested change: Add alternatives of 1) waste disposal starting after WTP is operational and 2) no offsite waste.**

- 5.(A) Impacts from Tank Farm Closure and Waste Disposal are provided separately. Yet the alternatives have them as part of the same alternative. Moreover, the points and times of impacts overlap. Because some sources will overwhelm other sources, it is important that each source be individually calculated and explained. **Suggested change: Provide impacts from key sources (as well as a discussion). Then merge the impacts (and create new discussion) to address each of the alternatives.**

**Detailed Comments**

Page S-87 The beginning discussion on Tank Closure Alternatives (S.5.4.1) and particularly Figure S-14 only present alternatives for residual waste (i.e., different retrieval fractions). However, the main text makes clear that past releases have much more of an impact as do waste near, but outside the tank farms. **Suggested change: At the beginning of S.5.4.1 include a new paragraph that list the subheadings with a short description of peak environment impacts. A side box describing the alternatives would also be useful. For each figure S-14, S-15, S-16, and S-18, note the figures where the impacts from other sources can be found.**

Page S-96: The intent of Figure S-18 and the associated text on pages S-94 through S-96 seems to be to summarize the environmental impacts for closure of the SST system. Thus, to understand the environment impact from each alternative, the reader needs the environmental impact from each of the sources for each alternative. Figure S-18 should have the impacts from past leaks as they are part of closure. Whether one includes the impacts from near-by sources should be considered (However, as these are not part of the closure of the SST System, I would urge not to include nearby sources - see above). **Suggested change: Include all sources for each alternative (i.e., past leaks as well as residual waste and retrieval leaks) in Figure S-18 and in the associated text.**

Page S-99 and S-100 (Figures S-20 and S-21). The point(s) of calculation are general at the Core Zone Boundary. However, the point(s) of calculation for Figures S-20 and S-21 are at the 200 East Area Integrated Disposal facility Barrier. There is no explanation why the change is made. **Suggested change: Be consistent. Present data for the same**

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contaminants that may have already reached the water table due to past practices, i.e., past leaks and infiltration from contiguous cribs and trenches (ditches).

Regarding the status of groundwater contamination and remediation at Hanford, groundwater remediation activities, as required under RCRA, CERCLA, and/or the TPA, are in various stages of assessment, risk-based end-state development, corrective action, and/or active remediation. For a more comprehensive discussion of remediation at Hanford, see Section 2.3 of this CRD.

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

DOE believes that both the individual alternatives (i.e., Tank Closure alternatives and Waste Management alternatives) and the combinations of the alternatives are discussed and explained. Chapters 4 and 5 of this *TC & WM EIS* provide individual results for short- and long-term impacts, respectively, for each resource area and the combinations of the Tank Closure and Waste Management alternatives are provided at the end of Chapters 4 and 5 (i.e., Section 4.4, Combination of Alternatives, and Section 5.4, Combination of Alternatives).

The commentor's suggestions were considered during the preparation of the Summary for this *Final TC & WM EIS* and DOE has taken efforts to try to provide more clarifying information as needed.

The Summary presents an overview of key environmental findings. To see all sources for each alternative, please see Chapter 5 of this EIS. Please see the Summary for discussion regarding closure of the SST system past leaks.

IDF barriers were used as the point of calculation in the figures because they are the permitted points of interest for the Waste Management alternatives chosen by Ecology to meet State Environmental Policy Act (SEPA) and permit requirements. The permitted points of interest for the Tank Closure alternatives are the tank farm barriers and the Core Zone Boundary, which is used for multiple sources, including the tank farms.

**Commentor No. 32 (cont'd): Fred Mann**

point(s) of calculation (so that comparisons can be made). If additional point(s) of calculation are presented, make sure that the reader is clearly informed that a change has been made.

Page S-106. Table S-11 uses floating point notation, making comparisons difficult. Moreover, the layreader understands better fixed point notation. **Suggested change: Use fixed notational rather than scientific notation as space is not a problem and would by more understandable for the lay reader.** (thus 0.246 million -> 246,000 and  $1.07 \times 10^4$  -> 10,700.

Pages S-112 to S-115 The costs are presented in a variety of units and in scientific notation, making understanding by the layreader difficult. **Suggested change: Use millions of dollars for cost (not  $10^6$  and  $10^9$ ). Not only would this be more understandable for lay reader, but would allow easier comparison as reader would not need to convert superscripts 6 and 9.**

Page 5-5 and others. Figure 5-2 and other figures used the phrase "other sources". All the alternatives deal with these other sources. This seems to be tank farm residuals. **Suggested change: Clearly state what are the other sources.**

Page 5-8 states that only 3% of the tritium in the groundwater reaches the Columbia River. This implies that the amount of tritium is reduced by a factor of 33 or by  $\sim 2^5$ . As the half-life of tritium is  $\sim 13$  years. Calculated groundwater travel time would by  $\sim 65$  years. Given past estimates of much faster travel time, an explanation is needed. **Suggested change: Have a section comparing calculated values with measurements.**

Page 5-9, the text states "Therefore, attempts to apply classic transport theory to these results can, in general, result in misleading conclusions." Yet it was classical transport theory that generated the results. Simply interpolating or extrapolated results can be misleading because of the multiple sources. **Suggested change: change sentence to read: "Therefore, attempts to simply interpolate or extrapolate these results can, in general, result in misleading conclusions."**

Figures 5-8 through 5-12 provide calculated values covering 1940 to the present. Yet there is no discussion on how these calculated values compare with measured values. Without such a comparison, it is impossible for the reader to judge the quality of the calculations, particularly as the input data were not necessarily selected to present the best available data. **Suggested change: add a many page section comparing the results to the extensive Hanford Site measurement data base.**

Page 5-11. Beside the extensive Hanford Site measurement data base, there have been many previous calculations. **Suggested change: To provide reader knowledgeable of such**

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Table S-11 in the *Draft TC & WM EIS* Summary and Table 6-37 in Chapter 6 of the draft EIS have been revised in this final EIS to put the carbon dioxide emission data in decimal format, as suggested by the commentor.

32-11

Because of the wide range of potential costs, the higher Tank Closure alternatives costs are presented in this *TC & WM EIS* in billions of 2008 dollars, whereas the lower FFTF Decommissioning and Waste Management alternatives costs are presented in millions of 2008 dollars. These units are specified in the title of each cost table in Chapter 2, Section 2.11, and the Summary, Section S.6. However, no cost figures are presented in these sections using scientific notation. Cost figures are typically not listed in scientific notation, but rather are presented in dollar amounts consistent with the format used in this *TC & WM EIS*.

32-12

The term "other tank farm sources" includes tank residuals, retrieval leaks, and ancillary equipment. These sources were analyzed together. Clarification has been provided in Chapter 5 of this *Final TC & WM EIS*.

32-13

The purpose of Chapters 5 and 6 is to provide information that compares the impacts of various alternatives. By design, results in Chapter 5 are comparable to each other, because they are based on the specifics of individual alternatives or alternative combinations. The results in Chapter 5 do not include contributions from cumulative impact sources, which are currently a contributor to the contamination in the aquifer. The comparison between modeled and measured results is presented in Appendix U, which includes all sources; in response to similar comments, this discussion has been expanded in this *Final TC & WM EIS*.

As a point of clarification, DOE notes that peak hydrogen-3 (tritium) concentrations in calendar years 1980, 1990, 2000, and 2010 compare favorably (well within an order of magnitude) with observed field measurements. First arrival times of the tritium plume at the nearshore of the Columbia River also compare favorably with field observations. DOE notes that first arrival times of tritium at the nearshore of the Columbia River on the order of 60 to 70 years are consistent with a finding that the majority of tritium (from all disposal sites) undergoes radioactive decay while transiting the vadose zone and groundwater system.

32-14

The sentence has been revised accordingly.

32-15

Please see response to comment 32-13 regarding the purpose of Chapters 5 and 6 and their relationship to Appendix U. Except for a few specific sources discussed in Appendix U, the agreement between modeled results and measured conditions

**Commentor No. 32 (cont'd): Fred Mann**

previous work, such earlier work should be referenced and compared to the present calculations.	<b>32-16 cont'd</b>
Page 5-11. The text states "Releases from cribs and trenches ... . Releases from other tank farm sources ...". However, cribs and trenches have not been managed as tank farm sources since the establishment of the Office of River Protection and for many years prior to that. <b>Suggested change: change text to "Releases from tank farm sources ...".</b>	<b>32-17</b>
Figures 5-8 through 5-12 show very large spikes and dips. Some spikes exceed $10^3$ ; some dips exceed $10^5$ . For example, if smooth over 10 years, then Figure 5-8 would look quite different. <b>Suggested change: The text should explain the origin of such departures from smooth behavior. If the spikes are the results of calculations but not of reality, then replot data over a suitable period.</b>	<b>32-18</b>
Figures 5-15 and 5-16 show the calculated groundwater spatial distribution of tritium and iodine-129 in the year 2005. However data are not given for technetium-99 and uranium, the major contaminants of concern in the analysis. More importantly, the calculated values are not compared to measurements. <b>Suggested change: Show the calculated and measured groundwater spatial distribution of tritium, technetium-99, iodine-129, and uranium in the year 2005.</b>	<b>32-19</b>
Page 5-16. The phrases "T barrier", "B Barrier", and "A Barrier" have not been defined in Chapter 5. <b>Suggested change: Define the "T barrier", "B Barrier", and "A Barrier" here.</b>	<b>32-20</b>
Page 5-16. The text states "... as a result of other tank farm sources ...". It is unclear what sources are meant. <b>Suggested change: Instead of using "other tank farm sources", state what sources are included.</b>	<b>32-21</b>
Page 5-35. The text states "The retrieval period was assumed to start in 2008 and end in CY 2193." Current plans are to close the tank farms (including retrieval) prior to 2050. No one has suggested a retrieval period of ~200 years. <b>Suggested change: Change "retrieval period" to "operational period" or another phrase.</b>	<b>32-22</b>
Page 5-38. Figure 5-39 has the release (curies) from U-238 as ~1.0 Curie (cribs and trenches), ~3 Curies (past leaks), and ~1.0 Curies (other sources). However, Figure 5-40 has the release (kilograms) for uranium as ~0.3 Mg (cribs and trenches, ~3 Mg (past leaks), and ~1 Mg (other sources). However, the uranium is depleted of isotopes other than U-238, thus the ratio for the 2 between the figures for each source should be the same (not 3, 1, 1 Curies/Mg). <b>Suggested change: look at data and replot.</b>	<b>32-23</b>
Page 5-69. Section 5.1.1.3.1 present summaries of the proposed action and timelines for Tank Closure Alternative 2B. The similar summary for Alternative 2A is 34 pages earlier in	<b>32-24</b>

is generally within a close order of magnitude. This overall agreement suggests that differences in long-term groundwater impacts that are greater than an order of magnitude should be considered significant in comparing the alternatives.

- 32-16** In response to this and similar comments, Appendices N and O have been expanded to include discussions of previous studies having a bearing on this NEPA evaluation.
- 32-17** Releases from other tank farm sources include releases from HLW tanks, including tank residuals, retrieval leaks, and ancillary equipment. In response to this and similar comments, the discussion in Chapter 5 of this *Final TC & WM EIS* has been clarified.
- 32-18** In response to this and similar comments, an expanded discussion of the causes of variability in the concentration versus time plots has been added to Chapter 5 of this *Final TC & WM EIS*.
- 32-19** Please see response to comment 32-13 regarding the purpose of Chapters 5 and 6 and their relationship to Appendix U.
- 32-20** A reference to the barrier boundaries used for the analysis was mentioned in the introductory text of Chapter 5. However, to provide more clarity, this language has been expanded.
- 32-21** Releases from other tank farm sources are releases from HLW tanks, including tank residuals, retrieval leaks, and ancillary equipment. In response to this and similar comments, the discussion in Chapter 5 of this *Final TC & WM EIS* has been clarified.
- 32-22** Chapter 5, Section 5.1.1.2.1, has been revised to clarify that the retrieval period under Tank Closure Alternative 2A includes retrieval, WTP pretreatment and treatment, and 100 years of administrative and institutional control. For clarification, this change is applicable to Alternative 2A, not Alternative 2B.
- 32-23** DOE conducted a detailed review of available inventory data and believes the inventory estimates analyzed in this EIS represent the best-available data at the time of its publication. None of the reviewed documents included a total uranium inventory estimate for many of the burial grounds or some liquid-waste sites. However, in response to this and similar comments, DOE reviewed the data again and revised the inventories to include a calculated total uranium inventory. This revised inventory was analyzed in this *Final TC & WM EIS*; specifically, Appendix S was revised to include these inventories for each of the affected sites.

**Commentor No. 32 (cont'd): Fred Mann**

Section 5.1.1.2.1. **Suggested change:** Add a paragraph summarizes the differences between Alternatives 2A and 2B. Also (per comment above), change "retrieval period" to "operational period" or another phrase.

Page 5-172, the text states "For the conservative tracers, concentrations at the Core Zone Boundary exceed benchmark standards by two to three orders of magnitude during most of the periods of analysis." Yet the corresponding figures (Figures 5-153, 5-154, 5-155, 5-156, and 5-157) show that except for near the beginning of the analysis, the concentrations are at most an order of magnitude over the benchmark (except for Tc-99 where the margin is 1 1/2 orders of magnitude from 3700 to 5000). **Suggested change:** Make the text consistent with the figures with the calculated impacts.

Page 5-172, the text states "Concentrations at the Columbia River are about two orders of magnitude smaller." . " Yet the corresponding figures (Figures 5-153, 5-154, 5-155, 5-156, and 5-157) show that the impacts at the Columbia River at one magnitude smaller, except for I-129 which is about a factor of 30 smaller and impacts for Tc-99, Cr, and nitrate at around the year 4000 that is also a factor of 30. It is unclear why I-129 behaves differently. **Suggested change:** Make the text consistent with the figures with the calculated impacts. Explain the different ratio for I-129 and around the year 4000.

Page 5-310. In Figure 5-325 the blue curve disappears under the tan. **Suggested change:** State in the caption that after Year 2500 "other sources are not significantly different from the total." A similar sentence can be used for other figures.

Page 5-316. The text states "The dose standard", but this phrase is not defined in particular for the American Indian resident farmer. Similarly for "hazard index guidance". **Suggested change:** define phrase and give numerical value.

Page 5-318 and on. Tables 5-22 and so on provide peak impacts. However, the corresponding figures show that the peak impacts occur shortly after 1940. **Suggested change:** As the purpose of an EIS is to decide among future alternatives, peak impacts should be provided for years after the data of publication (2009).

Page 5-318 and on. Tables 5-22 and so on include the impacts from cribs and trenches. These impacts according to the figures drive peak impact levels (because of the very high values early on). Therefore, differences among the alternatives are lost. **Suggested change:** Do not include the impacts from cribs and trenches, particularly as they are not managed as tank waste.

Page 5-422 and on. Figures 5-376 and on provide releases. However, the releases are only for the first 10,000 years. **Suggested change:** For all release figures, but particularly for those involving sources having long-term releases, add the phrase "during the 10,000 year time of analysis."

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- 32-24 The information the commentor is requesting is presented earlier in this *TC & WM EIS*. Specifically, summaries of the proposed action and timelines for Tank Closure alternatives are presented comparatively in Chapter 2, Section 2.5.
- 32-25 DOE agrees with the commentor's characterization of these ratios and has revised the text in this *Final TC & WM EIS* accordingly.
- 32-26 DOE agrees with the commentor's analysis with respect to the ratio between Core Zone Boundary and Columbia River concentrations and has revised the text accordingly in this *Final TC & WM EIS*. Under Tank Closure Alternative 5, differences in the ratio for iodine-129 around year 4000 are attributed to the release from tank farm residuals that starts about this time, as tank farm residuals are a grouted waste form (note that Tank Closure Alternative 5 has only 90 percent retrieval, and, thus, a larger portion of the total inventory for each tank farm is available for release than under other Tank Closure alternatives). The discussion of this result has been expanded in this *Final TC & WM EIS*.
- 32-27 In response to this and similar comments, the data presentation in Chapters 5 and 6 has been revised in this *Final TC & WM EIS*. Specifically, in cases where there is a superposition of curves that obscures part or all of the information, the accompanying text contains a discussion of the obscured information.
- 32-28 Please see Appendix Q for the dose standard used in this *TC & WM EIS*. Please see Chapter 9 for the definition and numerical value of the Hazard Index.
- 32-29 As described on page 5-317 of the *Draft TC & WM EIS*, Tables 5-22 and 5-23 show the impacts from cribs and trenches (ditches) after calendar year 1940; and Tables 5-24 and 5-25 show the impacts from the past leaks after calendar year 1940. However, Tables 5-26 and 5-27 show the impacts from the combination of cribs and trenches (ditches), past leaks, and other tank farm sources after calendar year 2050. Appendix Q provides more detail and explanation for using the calendar date 2050.
- 32-30 The impacts of six sets of cribs and trenches (ditches) cannot be removed from the analysis because they are contiguous to the SSTs and would fall under the barriers placed over the SSTs during closure. These cribs and trenches (ditches) are CERCLA past-practice units and are evaluated in this EIS as part of a connected action because they would be influenced by barrier placement. Please see Chapter 1, Section 1.4, Decisions and Regulatory Framework, for more information on cribs and trenches (ditches). DOE disagrees that differences among the alternatives would be lost, because the same assumptions about the cribs and trenches were used for all alternatives.



**Commentor No. 32 (cont'd): Fred Mann**

Page 5-428 and on. Impacts from Integrated Disposal Facility exceed benchmarks because of the inclusion of off-site waste, which is very conservatively estimated. There is only one case analyzed for off-site waste and that case is inconsistent (much higher) than the preferred alternative. **Suggested change: Redo the Integrated Disposal Facility Alternatives calculations with the inventory corresponding to the preferred alternative.**

32-32

Appendix C. A key document used in the EIS is the "EIS Technical Guidance Document TC EIS Vadose Zone and Groundwater Revised Analyses". **Suggested change: Include entire document in Appendix B or C.**

32-33

Page D-2. The text states that information after December 1, 2002 are not included. However, section D.1.1.5 does describe new information and shows significant changes in Tc-99 and I-129 inventories. **Suggested change: Include a reference to Section D.1.1.5 for newer information.**

32-34

Page D-15 states "Three levels of retrieval were considered for the TC & WM EIS analysis: 90, 99, and 99.9 percent retrieval of current inventory of radioactive and nonradioactive constituents." as well as "Nine-nine percent retrieval is in the TPA." However, The ninety-nine percent retrieval in the TPA refers to capacity, not current inventory. Thus, the text misleads the reader into assuming that the inventory used in the EIS is comparable to the TPA, rather than being on average about a factor of 2 lower, and in some cases an order of magnitude lower. **Suggested change: replace "Nine-nine percent retrieval is in the TPA." with "The TPA requires on average 99. % retrieval based on capacity, not on inventory as of 2002. Thus, TPA-compliant inventories may be twice as high as used in the EIS 99% case."**

32-35

Page D-16 states the decision to use volume retrieval method. However, 7 tanks have been retrieved with the composition of the residual waste actually measured. **Suggested change: Add a short discussion of the reliability of the volume retrieval method with actual experience.**

32-36

Page D-24 discusses historical leaks. However, much information has been obtained since December. **Suggested change: Just as for the Best Basis Inventory (discussed in Section D.1.1.5), there should be a discussion on how new data affects inventory data.**

32-37

Page D-26 states that inventories for cribs and trenches, which are outside of tank farms, come from 2005 source. However, data for inventories inside tank farms (one of the main focuses of the EIS) are from 2002 sources. **Suggested change: Tank farm inventories should come from the same date or more recent dates than for non-tank farm sources.**

32-38

**32-31** The first sentence in each section describing the "analysis of release and mass balance" clarifies that the section presents the impacts in terms of release during the 10,000-year period of analysis.

**32-32** In response to this and similar comments, additional analyses of IDF performance have been conducted and are presented in Chapter 7, Section 7.5, of this *Final TC & WM EIS*. The additional analyses consider changes in predicted impacts as a function of the inventory of LLW and MLLW imported from off site.

**32-33** The *Technical Guidance Document* (DOE 2005) and other document sources are referenced where applicable in both the main document chapters and in the appendices, and are available on the Hanford website (<http://www.hanford.gov>). Specifically, the *Technical Guidance Document* can be found under the Scoping heading on the Tank Farm Closure & Waste Management Environmental Impact Statement page, which is listed in the NEPA – Environmental Impact Statements subsection of the Official Documents page.

**32-34** A reference to the BBI comparison in Appendix D, Section D.1.1.5, is not considered necessary as it is a subsection of Section D.1.1, follows within a reasonable number of pages, and doing so may be confusing to the reader.

**32-35** Concerning the disproportionate amount of radioactivity in the residues at the bottom of the tanks, DOE currently does not have a technical basis for making more-specific assumptions about the expected compositions of the waste "heels" that would remain in the tanks after retrieval. Retrieval has been completed for only a small number of SSTs, and not much is known about the behavior of, or ability to remove, small volumes of residual waste. However, the tank closure process, which includes detailed examinations of the tanks, residual waste, and surrounding waste in the soil, requires preparation of detailed performance assessments and a closure plan. These documents will provide the information and analysis necessary for DOE and the regulators to make specific decisions on what levels of residual tank waste are acceptable in terms of short- and long-term risks.

**32-36** DOE notes the commentor's recommendation to add a discussion on the reliability of using the volume retrieval method in lieu of actual experience. Appendix D, Section D.1.3, concludes that the volume retrieval method for estimating the tank residual waste after retrieval is appropriate. Currently, retrieval has been completed on seven tanks, of which three were 100-series tanks and four were 200-series tanks. For the three 100-series tanks (C-103, C-106, and S-112), a review of the estimated residual technetium-99 inventory compared

**Commentor No. 32 (cont'd): Fred Mann**

Page D-26 states "Recent field investigations conducted by Bechtel Hanford at the B-38 trench". However, Bechtel Hanford never did investigations at the B-38. Bechtel Hanford Company had responsibility for investigations near the Columbia River. CH2M HILL Hanford Group did such investigations. <b>Suggested change: Change "Bechtel Hanford" with "CH2M HILL Hanford Group".</b>	<b>32-39</b>
Page D-33 states that 2007 data are used for waste streams produced by the Waste Treatment Plant (WTP). However, tank farm data comes from 2002. Moreover the input to the 2007 flowsheet was not based on 2002 tank farm data (Best Basis Inventory) much more current data. Thus tank farm data and WTP data will not be consistent. <b>Suggested change: Tank farm inventories should come from the same date or more recent dates than for WTP sources.</b>	<b>32-40</b>
Page D-33 does not discuss Tc-99 not captured in the glass matrix, but is retained in the glass canister. The presence of such Tc-99 has been seen in WTP testing and the quantity has been estimated. Such Tc-99 for bulk vitrification waste forms is shown in the EIS to be more important than the Tc in the matrix. <b>Suggested change: Add a discussion on the amount of Tc-99 in WTP glass canisters that are not captured in glass matrix. Include such inventory in the WTP glass calculations.</b>	<b>32-41</b>
Page D-126. The text states that the inventory for off-site waste is from a 2006 report, but tank waste is from 2002. <b>Suggested change: Make inventory estimates from references of a similar date.</b>	<b>32-42</b>
Page D-127. The text states "Therefore, there are significant uncertainties in [off-site waste] waste volume projections ..." Moreover, from the analysis conducted, it is off-site waste that has the largest impacts. However, only one case is analyzed and it is not the preferred alternatives case. <b>Suggested change: Perform sensitivity cases to the amount of off-site waste.</b>	<b>32-43</b>
Page D-127 on. The text assumes operation of the Integrated Disposal Facility (IDF) starts in 2009. It is now 2009 and the facility is nowhere near operation. Moreover, DOE has agreed with the State of Washington that no offsite waste will be disposed in IDF until after the Waste Treatment Plan is operation (~2022) and this is part of the preferred alternative of this EIS. As discussed in the text, much (at least half) of the off-site waste assumed for disposal in IDF must be disposed prior to 2022. <b>Suggested change: Have preferred alternative as one of the off-site waste cases analyzed.</b>	<b>32-44</b>
Page L-5. The text states "Previously compiled data were used ... . When compiled data were unavailable or inadequate for the development methodology used, historical primary data were obtained and processed for use or additional data were collected." However, no references were provided. <b>Suggested change: provide references for previously compiled data, for historical primary data, and for additional data.</b>	<b>32-45</b>

with the expected inventory found inconsistencies between the three tanks and a wide range in the ratio of final curies to expected curies. From this review, DOE concluded that it currently does not have a technical basis for making more-specific assumptions about the expected compositions of the waste "heels" that would remain in the tanks after retrieval, and not much is known about the behavior of, or ability to remove, small volumes of residual waste.

As suggested, this discussion was added to Appendix D in this final EIS. It is also noted that the tank closure process, if implemented, would require detailed examinations of the tanks and residual waste, as well as preparation of site-specific radiological performance assessments and closure plans. These documents will provide the information and analysis necessary for DOE and the regulators to make specific decisions on what levels of residual tank waste are acceptable in terms of short- and long-term risks.

Regarding the status of groundwater contamination and remediation at Hanford, groundwater remediation activities, as required under RCRA, CERCLA, and/or the TPA, are in various stages of assessment, risk-based end-state development, corrective action, and/or active remediation. For a more comprehensive discussion of remediation at Hanford, see Section 2.3 of this CRD.

One of the purposes of this *TC & WM EIS* is to analyze potential impacts of DOE's proposed actions to retrieve waste from the buried tanks, treat and dispose of this waste, and close the SST farms. This analysis is also intended to aid DOE in making decisions regarding cleanup of the past leaks.

**32-37** DOE is not aware of any new historical leak data becoming available since December 2009. Thus, a comparison similar to the discussion regarding the BBI data was not included in this EIS.

**32-38** To address this specific comment on the draft EIS questioning DOE's use of the 2002 BBI for tank waste inventory data, in 2005, ORP; DOE-RL; DOE Office of Health, Safety, and Security; DOE-EM; DOE Office of the General Counsel; and Ecology reviewed the 2002 BBI estimates. The conclusion then, and now, is that the 2002 BBI is appropriate for the analyses in this *TC & WM EIS*. This conclusion is supported in Section 4.0, Assumptions, in the *Technical Guidance Document* (DOE 2005), dated March 25, 2005, which was approved by DOE and Ecology. In summary, DOE and Ecology concluded that the 2002 BBI includes inventory values for both technetium-99 and iodine-129, two risk-driving radionuclides, that are at the higher end of the range of numbers based on the inherent uncertainty in the way the BBI is formulated. This use of some



**Commentor No. 32 (cont'd): Fred Mann**

Page L-5. The text describes the methodology of developing the groundwater, but nowhere is the underlying physical conceptual model provided. It is implied by the choice of MODFLOW, but should be made explicit for the (lay) reader. **Suggested change: provide the underlying physical conceptual model for the groundwater model.**

32-46

Page M-1. The text states "Although best available data and models are used to develop the analysis described in this appendix, ..." However, this is not true. Just one example (see below) is release of contaminants from glass matrix. The model used is a one-dimensional model that is now known to miss important processes (most contaminants flow around the glass matrix rather than through it) and the data are based on a glass formulation developed by the Pacific Northwest National Laboratory rather than for glass formulations developed by the Waste Treatment Plant. **Suggested change: Replace sentence with "Because of uncertainties in the data and models used, uncertainty in the results remain."**

32-47

Page M-14. Section M.1.3.1 provides inventories for past releases. Although it can be thought of a release mechanism, normally most readers would treat it as inventory. **Suggested change: Discuss in the inventory appendix and provide a link to that section here in the release section.**

32-48

Page M-16. The text describes the release rate methodology for salt cake, but not for sludges. For the tanks that have been retrieved (all of which contain sludges), there are measured release rates. **Suggested change: Discuss methodology for sludges.**

32-49

Page M-18. The text states (twice) "detailed analysis using the STORM Model (Mann et al. 2003)". Mann et al. 2003 is not a detailed analysis. The executive summary of that document states "However, because of budget, schedule, and technical limitations, this report is acknowledged to be less rigorous and detailed than a performance assessment, ...". **Suggested change: See new paragraph below.**

Page M-18. Mann et al. 2003 used a one-dimensional analysis forcing all contaminant through the glass matrix. Newer analyses by Diana Bacon and Pete McGrail (PNNL-15198) have used two-dimensional analyses which allow most of the contaminants to move around the glass matrix. Both the details of local environment parameters and the release results are much different. **Suggested change: See new paragraph below.**

32-50

Page M-18. The basis for much of the technical analysis (including release) is the "EIS Technical Guidance Document TC EIS Vadose Zone and Groundwater Revised Analyses". That document specifies 0.9 mm/year recharge rate. However, Mann et al used a recharge rate of 4.2 mm/yr. According to Mann et al. 2003, the release rate varies as (recharge)<sup>6</sup>. Thus, using the EIS guidance document and the methodology of Mann et al. 2003, the release rate should be reduced by (0.9/4.2)<sup>6</sup> or  $\cdot 10^{-4}$ . However, the use of

conservatism by using the higher number for two risk drivers is still considered appropriate for this EIS analysis. Regarding the use of the SIM [Hanford Soil Inventory Model], Revision 1, data for analysis of the cribs and trenches (ditches), dated 2005, as explained in Appendix D, Section D.1.5, DOE reviewed the available data and concluded these data are appropriate for the analysis in this TC & WM EIS.

32-39 The text was revised from "Bechtel Hanford" to "CH2M HILL Hanford Group" in this final EIS.

32-40 The only "2007 data" reference noted in Appendix D of the draft EIS is "CEES 2007b," which is a mass balance calculation that analyzes the 2002 BBI, not a newer source of inventory. The 2002 BBI estimate was reviewed by DOE, which concluded that it best represents the inventories of the SSTs and DSTs. Use of the 2002 BBI was agreed to by DOE and Ecology representatives in the *Technical Guidance Document* (DOE 2005) for this EIS. DOE believes consistent use of the 2002 BBI has been maintained throughout this EIS. For a more comprehensive discussion of this topic, see Section 2.2 of this CRD.

32-41 DOE is not aware that technetium-99 is retained on the ILAW glass canister walls. This EIS utilized the Hanford Tank Waste Operations Simulator model partitioning factors and assumptions to develop the Tank Closure alternatives mass balances.

32-42 The 2002 BBI estimate was reviewed by DOE, which concluded that it best represents the inventories of the SSTs and DSTs. Use of the 2002 BBI was agreed to by DOE and Ecology representatives in the *Technical Guidance Document* (DOE 2005) for this EIS. The offsite waste inventory was prepared in 2006 to support the draft EIS following DOE's January 6, 2006, Settlement Agreement with the State of Washington (as amended on June 5, 2008) regarding *State of Washington v. Bodman* (Civil No. 2:03-cv-05018-AAM), signed by DOE, Ecology, the Washington State Attorney General's Office, and DOJ. For a more comprehensive discussion of this topic, see Section 2.2 of this CRD.

32-43 The impacts of offsite waste in terms of radiological risk are presented in the Summary, Section S.5.5, and Chapter 2, Section 2.10, Key Environmental Findings. These sections illustrate the radiological risk differences between including and not including offsite waste disposal at IDF-East. The TC & WM EIS analysis shows that receipt of offsite waste streams that contain specific amounts of certain isotopes, specifically, iodine-129 and technetium-99,

**Commentor No. 32 (cont'd): Fred Mann**

one-dimensional methodology in Mann et al. 2003 is not known to be incorrect. .  
**Suggested change:** See new paragraph below.

Page M-18. Mann et al 2003 used LAWABP1 as the glass composition. However, this composition is much different from the glass compositions planned to be used in the Waste Treatment Plant. . **Suggested change:** See new paragraph below.

**Suggested change for above comments:** A key guidance document for this EIS is the "EIS Technical Guidance Document TC EIS Vadose Zone and Groundwater Revised Analyses". This guidance document states "Waste sources to be evaluated for release functions in the TCEIS will include primary and secondary grouted waste, tank residual salt cake, liquid releases, and vitrified waste forms. Information on release rates from salt cake, grouted waste forms, and vitrified waste forms are available in *Risk Assessment Supporting the Decision in Initial Selection of Supplemental ILAW Technologies* (RPP-17675) and *Annual Summary of Immobilized Low Activity Waste Performance Assessment for 2003, Incorporating the Integrated Disposal Facility Concept*, (DOE/ORP-2000-19)." For this analysis, the glass release for WTP glass is taken as  $2.8 \times 10^{-8}$  (gram per gram) and  $1.0 \times 10^{-8}$  for bulk vitrification glass based on the Annual Summary (here referenced as Mann et. al 2003). These values are consistent with newer data and methodology (Bacon and McGrail 2005). During the production of glass, a portion of the feed technetium is volatilized ..."

Page M-18. Peer review is given as the reference for the upper limit for technetium in the castable block. This is not a reference. **Suggested change:** provide a literature reference.

Page M-18. Technetium not in the glass matrix is included for bulk vitrification (BV), but not for Waste Treatment Plant (WTP) glass. However, just as in bulk vitrification, Tc will evaporate from the glass melt from ~250 to ~500° in WTP containers. Such white powder has indeed been seen in WTP tests. Moreover, because of the physical conditions, it can be expected that more Tc not in the matrix would be present in WTP product than in BV product. **Suggested change:** include non-matrix Technetium in WTP glass.

Page M-80. The text describes the effects of recharge on past leaks. However, nowhere is there a discussion of thermal effects. As shown by Steve Yabusaki in the SX Field Investigation Report (Knepp 2001), these thermal effects are very important (many orders of magnitude) if the modeling starts at the tank source. **Suggested change:** The importance of such thermal effects should be acknowledged and quantified.

Page N-2. The text presents a discussions of why alternatives on vadose zone flow and transport were not chosen. **Suggested change:** such discussions should occur whenever the EIS Team made a decision on data or methodology.

Pages N-2 and on. The comparisons between measurements and calculations are presented for sources having very high discharge or recharge rates. Yet the bulk of the alternatives

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could cause an adverse impact on the environment. Therefore, one means of mitigating this impact would be for DOE to limit disposal of offsite waste streams at Hanford. Other mitigation measures, such as recycling secondary-waste streams into the primary-waste-stream feeds within the WTP to increase iodine-129 capture in ILAW and bulk vitrification glass, are discussed in Chapter 7, Section 7.5, of this final EIS.

For the purpose of analysis, Waste Management Alternatives 2 and 3 were revised in the *Final TC & WM EIS* to reflect the receipt of offsite waste starting in 2022.

In response to this comment, Appendix L of this *Final TC & WM EIS* has been modified to provide references to previously compiled data, historical primary data, and other data sources.

Appendix L, Section L.2, of this *Final TC & WM EIS*, has been revised to include a simple diagram and a brief description of the groundwater pathway conceptual model.

DOE does believe that the best-available data and models were used to develop the analysis for the *Draft TC & WM EIS* and disagrees that this sentence needs to be revised as suggested.

DOE disagrees with the commentor's interpretation of this section of Appendix M. Appendix M, Section M.3.1, provides a description of the volume estimates and dates for past leaks and refers the reader to Appendix D for the estimates of quantities of constituents involved in past leaks (i.e., inventories).

For alternatives involving abandonment of the tanks (Tank Closure Alternatives 1 and 2A), sludge phases were assumed to be encapsulated in salt cake and to be released by dissolution of the salt cake. Given the uncertainty in specification of tank failure and the large adverse impact of any release from an unstabilized tank, refinement of the release models for Alternatives 1 and 2A is not warranted. Stabilization of tanks occurs for all alternatives except Alternatives 1 and 2A. For those alternatives, residual salt cake and sludge were assumed to be diluted and mixed into the lower layer of grout placed in the tank.

The text of Appendix M, Section M.3.1, has been revised by removing the reference to level of detail in the analysis of the *Risk Assessment Supporting the Decision on the Initial Selection of Supplemental ILAW Technologies* (Mann et al. 2003) and stating that conditions used in that analysis, such as the rate of recharge at IDF-East, differ from the *TC & WM EIS* Base Case conditions, with expectedly conservative implications for predicted impacts.

**Commentor No. 32 (cont'd): Fred Mann**

analysis are for sources (residual tank waste or disposal facility waste) having low recharge rates. **Suggested change:** Note that comparisons are for high discharge rates. Add comparisons for low discharge rates.

Page N-6. The text states that a travel time sensitivity shows that movement of water and solute through the vadose zone is largely controlled by the Hanford gravel, Hanford sand, and Ringold Gravel soil types. However, measurements at TY and U Tank Farms have shown that the Cold Creek Unit is much more important. **Suggested change:** Acknowledge the presence of measurements that show the importance of the Cold Creek Unit.

Page N-6 and elsewhere. The Plio-Pleistocene unit is now known as the Cold Creek Unit. **Suggested change:** make a global change so that readers are not confused.

Page N-7. The text states that the measurements and calculations are in general agreement. However, Figure N-6 (Predicted concentrations) show less than 2 orders of magnitude drop from the peak. Yet Figure N-5 (measured gross beta) shows over 4 orders of magnitude drop. **Suggested change:** Explain why calculations are so far from measurements and what are the key parameter changes that would be needed to reduce this difference (including lateral flow).

Page N-8. The x-axis for Figure N-6 is years after some undefined time. **Suggested change:** Place 0 year at the date of the start of discharges, so that direct comparison can be made to Figure N-5.

Pages N-12 and N-13. Figure N-9 (measurements) and Figure N-10 (calculations) are plotted to different scales and orientation. **Suggested change:** Figure N-9 (measurements) and Figure N-10 (calculations) should be plotted to the same scale and the same orientation to help the reader.

Pages N-18. Figures N-15 and N-16 show that the TX Tank Farm had larger releases than T Tank Farm, even though T-106 was by far the largest tank farm leak. TX tank releases are mainly thought to be metal (i.e. uranium) waste and are relatively small. **Suggested change:** Look at data and replot.

Page N-90 and N-91. The referenced figures start on page N-95, but the discussion ends on page N-91. **Suggested change:** move the figures closer to the location where they are called out in the text.

Pages N-104 and 105. Figures N-151 and 152 do not present sensitivity case 1. **Suggested change:** Have sensitivity case 1 in the legend, but note the values are the same as for the EIS case.

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This *Final TC & WM EIS* has been revised to provide the appropriate reference.

DOE disagrees with the commentor's suggested revision. There has not been sufficient product demonstration to support this conclusion.

As suggested in the comment, Section 7 (Simulation of Multiphase Fluid Flow and Reactive Transport at the SX Tank Farm) of the *Field Investigation Report for Waste Management Area S-SX* (CH2M HILL 2002) was reviewed. In particular, the descriptions of simulations of vadose zone conditions established by early year elevated tank temperatures for a tank leak (Section D.7.1) and for measured vadose zone concentrations (Section D.7.2) have been reviewed. DOE agrees that local moisture content, water and vapor flow, and solute transport are strongly influenced by the transient elevated temperatures. DOE also notes that the *Field Investigation Report for Waste Management Area S-SX* analysis reports that, for the tank leak simulation, "thermal effects on aggregated tracer migration are generally modest" (CH2M HILL 2002:page D-267) and that, for the measured concentration case, the time series of dissolved technetium concentrations at the Waste Management Area S-SX boundary (CH2M HILL 2002:Figure D.7.2.39) for isothermal and non-isothermal simulations are very similar in peak magnitudes and overall shape with a displacement in time on the order of a few years. Because the *TC & WM EIS* analysis is focused on larger scale and longer timeframe analysis supporting comparison of alternatives rather than investigation of local site conditions, DOE concludes that analysis based on isothermal conditions is sufficient for use in this EIS.

In response to this and similar comments, Appendices N and O have been expanded to include discussions of different modeling approaches in the context of this NEPA evaluation.

Further description and clarification have been provided to address this and other comments on the presentation of material in Appendix N.

Appendix N, Section N.3.6.1, was revised in this *Final TC & WM EIS* to clarify the importance of the Plio-Pleistocene Unit (part of the Cold Creek Formation) in the vadose zone flow and transport.

The stratigraphic column shown in Chapter 3, Figure 3-9, of this *TC & WM EIS* depicts the Cold Creek Unit relative to the Hanford and Ringold Formations and reflects the names of these and other geologic formations and member units recognized at Hanford. Chapter 3, Section 3.2.5.1.2, also presents a detailed description of each geologic unit, recognizing that the Cold Creek Unit

**Commentor No. 32 (cont'd): Fred Mann**

encompasses various deposits known informally as the Plio-Pleistocene Unit or pre-Missoula gravels, and by other terms.

As stated above, for purposes of developing the *TC & WM EIS* groundwater flow model, detailed hydrogeologic data were compiled in part from review of approximately 5,000 Hanford boring logs, as described in Appendix L, Section L.4, of this EIS. This review was conducted to discern textural differences between layers of mud, silt, sand, and gravel and associated differences in hydraulic characteristics for development of the geologic layers for the groundwater model flow field. In this scheme, the Plio-Pleistocene Unit was retained as a separate unit and individual layers within it and the Hanford and Ringold Formations and Cold Creek Unit were further assigned to 1 of 13 material types. The assigned names for these material types are used throughout the discussion of the vadose zone analysis presented in Appendices M and N and the groundwater transport analysis in Appendix O of this EIS.

**32-58** With respect to this comment, the predicted concentrations of technetium-99 (Table N-6 from the *Draft TC & WM EIS*) have been overlaid on the observed gross beta and technetium-99 groundwater concentrations (Table N-5 from the *Draft TC & WM EIS*). The observed gross beta concentrations represent concentrations of technetium-99 and other activation products. The observed concentrations were used as a qualitative comparison to the predicted technetium-99 concentrations, indicating a sharp peak of technetium-99 between 1955 and 1960, decreasing to a concentration plateau between 1965 and 1975 and then decreasing to  $3 \times 10^4$  picocuries per liter through the present.

For further clarification, Figures N-9 and N-10 comparing the observed versus the predicted concentrations of tritium from the Reduction-Oxidation (REDOX) Facility have been plotted on similar scales for comparisons.

DOE agrees with the commentor's interpretation of the results, with the exception of the assertion that a single tank drives the analysis. The inventories for past leaks from tank farms is discussed in Appendix D, Section D.1.4. The data indicate that the leak inventory from TX tank farm is greater than T tank farm, which leads to the results shown in Figures N-15 and N-16 from the *Draft TC & WM EIS*.

**32-59** The callouts and placement of figures in Appendix N have been revised to address the commentor's concern.

**32-60** Text has been added to the cited section to explain why data for Sensitivity Case 1 are not presented on the cited figure.

Commentor No. 33: Karen Mitzner

**From:** Karen [co-create@comcast.net]  
**Sent:** Thursday, February 11, 2010 10:04 AM  
**To:** tc&wmeis@saic.com  
**Subject:** Hanford

Making Hanford a nuclear dump for the nation is unacceptable to me, as a Portland resident and cancer survivor, and, if the facts were known nationally, would be unacceptable across the nation. Trucking nuclear waste makes an accident a near inevitability, "dirty bombs" waiting to explode.

33-1

Moreover, the Hanford Nuclear Reservation is already the most contaminated site in the Western Hemisphere. Even vitrification, our best alternative to other storage options at Hanford, is not a good solution--glass is not able to endure the millennia necessary to prevent the escape of extremely toxic waste into the biosphere.

33-2

We've had it with Hanford and nuclear power and nuclear waste dumping in this region! Clean up Hanford!

33-3

Karen Mitzner  
co-create@comcast.net  
136 SE 63rd Ave  
PD, OR 97215

33-1

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

33-2

Vitrification of radioactive waste into glass is an attractive option because it atomistically bonds the species in a solid glassy matrix. Because the radioactive constituents are bonded within the glass structure, the waste forms produced are very durable and environmentally stable over long time periods; however, they remain toxic. EPA has declared vitrification to be the best-demonstrated available treatment technology for HLW that exhibits the characteristic of toxicity for metals and corrosivity (Land-Disposal-Restriction Requirements [40 CFR 268]). The tank waste is considered to be mixed waste and must be treated to meet the applicable treatment standards. While borosilicate glass (vitrified glass) is the most durable and stable material currently known, as the commentor states, the waste in the glass would remain toxic and eventually be released.

33-3

The use of nuclear power in the United States is beyond the scope of this *TC & WM EIS*.



Commentor No. 34: Kris Gann

TANK CLOSURE AND WASTE MANAGEMENT ENVIRONMENTAL IMPACT STATEMENT

U. S. DEPARTMENT OF ENERGY

Comment Form  
Formulario para comentarios

Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: 2/9/10

1. What comments do you have on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)?  
¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Desechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

Do what you originally agreed to do.  
1. Clean up Hanford to 99.9% retrieval level and stop trying to get out of it.  
2. Do not transport any additional radioactive material and waste. It's unacceptable to jeopardize our health and each others' now and future generations by doing this.  
3. Cleanup and remediate the soil for all existing tanks and contamination. The Columbia River should be safe for salmon and humans.

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: Kris Gann  
Address/Dirección: 407 Cascade  
City, State, Zip Code/Ciudad, Estado, Zona Postal: Hood River, OR 97031

NOTE: Please do not include personal information (such as address or phone number) if you object to it being included in the TC & WM EIS.  
Comments received, including contact information, are published in the TC & WM EIS in their entirety.  
NOTA: Favor de excluir información personal (dirección o número de teléfono) que desea que no aparezcan en el TC & WM EIS.  
Comentarios recibidos, incluyendo la información personal proporcionada, serán publicados en el TC & WM EIS.

For more information contact: Mary Beth Burandt, Document Manager,  
TC & WM EIS, P.O. Box 1178, Richland, WA 99352  
Toll-free telephone: 1-888-829-6347 • Toll-free Fax: 1-888-785-2865  
E-mail: TC&WMEIS@eaic.com



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The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the TC & WM EIS analyses. These include Tank Closure Alternatives 4, 6A, and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all or part of the SST system. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this Final TC & WM EIS is published in the Federal Register.

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

As analyzed in this TC & WM EIS, 67 of the 149 SSTs at Hanford are known or suspected to have leaked liquid waste to the environment between the 1950s and the present, some of which has reached the groundwater. Estimates of the total leak loss range from less than 2.8 million to as much as 3.97 million liters (750,000 to 1,050,000 gallons). DOE recognizes that groundwater contamination from past leaks is a concern at Hanford and its potential impact on communities downriver from Hanford. One of the purposes of this TC & WM EIS is to analyze potential impacts of DOE's proposed actions to retrieve waste from the buried tanks, treat and dispose of this waste, and close the SST farms. This analysis is also intended to aid DOE in making decisions regarding cleanup of the past leaks.

**Commentor No. 35: Elaine Johnson**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**

Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: 02/09/10

1. What comments do you have on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)?

¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Desechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

I demand that DOE clean up all 53 million gallons buried nuclear waste to 99.9% Johnson I am a person but have grand children who have to pay & fish in the Columbia I want it to be safe for them & for their children's children to enjoy the beauty & the health of the Columbia river all the way to the Pacific Ocean. I want you to DROP the proposal to ship radioactive waste from across the nation to Hanford. That is a potential disaster. Please DO NOT DO THIS to the beautiful NW!!!

35-1

35-1

The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the TC & WM EIS analyses. These include Tank Closure Alternatives 4, 6A, and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all or part of the SST system. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this Final TC & WM EIS is published in the Federal Register.

35-2

35-2

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: Elaine Johnson

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NOTE: Please do not include personal information (such as address or phone number) if you object to it being included in the TC & WM EIS.  
Comments received, including contact information, are published in the TC & WM EIS in their entirety.

NOTA: Favor de excluir información personal (dirección o número de teléfono) que desea que no aparezcan en el TC & WM EIS.  
Comentarios recibidos, incluyendo la información personal proporcionada, serán publicados en el TC & WM EIS.

For more information contact: Mary Beth Burandt, Document Manager,  
TC & WM EIS, P.O. Box 1178, Richland, WA 99352  
Toll-free telephone: 1-888-829-6347 • Toll-free fax: 1-888-785-2865  
E-mail: TC&WMEIS@doe.gov



Commentor No. 36: Scott Johnson

TANK CLOSURE AND WASTE MANAGEMENT ENVIRONMENTAL IMPACT STATEMENT

U. S. DEPARTMENT OF ENERGY

Comment Form  
Formulario para comentarios

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PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: 2/9/2010

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¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Desechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

MAKE IT MADATORY THAT DOE CLEAN UP  
ALL THE 53 MILLION GALLONS OF WASTE  
  
DO NOT SHIP MORE RADIOACTIVE WASTE TO  
HANFORD. DOE CAN'T HANDEL THE ON  
GOING RESPONSIBILITY.  
  
CLEAN UP THE MILLIONS OF GALLONS OF  
NUCLEAR WASTE AS IT IS LEAKING INTO  
THE COLUMBIA. I AM A FISHERMAN AND  
ARE CONCERNED ABOUT EATING THE  
FISH THAT I CATCH.

36-1

36-1

The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the TC & WM EIS analyses. These include Tank Closure Alternatives 6A and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all of the SST system, which would effectively remove 100 percent of the waste. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this Final TC & WM EIS is published in the Federal Register.

36-2

36-2

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

36-3

36-3

As analyzed in this TC & WM EIS, 67 of the 149 SSTs at Hanford are known or suspected to have leaked liquid waste to the environment between the 1950s and the present, some of which has reached the groundwater. Estimates of the total leak loss range from less than 2.8 million to as much as 3.97 million liters (750,000 to 1,050,000 gallons). DOE recognizes that groundwater contamination from past leaks is a concern at Hanford and its potential impact on communities downriver from Hanford. One of the purposes of this TC & WM EIS is to analyze potential impacts of DOE's proposed actions to retrieve waste from the buried tanks, treat and dispose of this waste, and close the SST farms. This analysis is also intended to aid DOE in making decisions regarding cleanup of the past leaks.

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: SCOTT JOHNSON  
Address/Dirección: 1201 CASCADE AVE, HOOD RIVER, OR 97031  
City, State, Zip Code/Ciudad, Estado, Zona Postal:

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TC & WM EIS, P.O. Box 1178, Richland, WA 99352  
Toll-free Telephone: 1-888-829-6347 • Toll-free Fax: 1-888-785-2865  
E-mail: TC&WMEIS@scdc.com





**Commentor No. 37: Linda Short**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**Thank you for your input  
Gracias por su participaciónDate/Fecha: 2/10/10

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

1. What comments do you have on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)?  
¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Desechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

*I have been following this concern for decades now and it's shameful that this potentially + dangerous situation has yet to be dealt with. Clean it up already! And NO new waste!!!*

37-1

37-1

Regarding the status of groundwater contamination and remediation at Hanford, groundwater remediation activities, as required under RCRA, CERCLA, and/or the TPA, are in various stages of assessment, risk-based end-state development, corrective action, and/or active remediation. For a more comprehensive discussion of remediation at Hanford, see Section 2.3 of this CRD.

**\*\* CONTINUE ON BACK FOR MORE SPACE \*\***  
**\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\***

Name/Nombre: Linda ShortAddress/Dirección: 2115 Avalon WayCity, State, Zip Code/Ciudad, Estado, Zona Postal: Hood River, OR 97031

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**Commentor No. 38: Rich McBride**

U.S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**

Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: \_\_\_\_\_

1. What comments do you have on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)?  
¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Resechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

WHY HAS IT TAKEN SO LONG?  
- FAST TRACK - LOW ACTIVITY WASTE  
START LAW VITRIFICATION SOONER  
THAN 2019 + FIND A 2ND LAW  
FACILITY BY 2012.  
DELETE, SUPPLEMENTAL TREATMENT OF LAW,  
2) ADD NO MORE WASTE TO HANFORD  
3) LIMIT & ELIMINATE COMMERCIAL  
WASTE TRENCH DEPOSITS.  
4) CLEAN UP TRANSURANIC WASTE  
IN UNLINED SITES & LEAKING TANKS.  
\* STOP BUMPING IN UNLINED PITS.  
3) US DOE MUST REMOVE 99.9% OF  
TANK WASTES  
B) US DOE MUST REMOVE TANKS &  
CONTAMINATED SOIL.

\*\* CONTINUE C  
\*\* CONTINUAR AL

Name/Nombre: Rich McBride  
Address/Dirección: 813 MARIAN  
City, State, Zip Code/Ciudad, Estado, Zona Postal: HOOD RIVER, OR 97031

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E-mail: TC&WMEIS@doe.gov



38-1

As discussed in the TC & WM EIS Summary, Chapter 1, and Chapter 2, this EIS analyzes additional waste treatment capability that includes expanding the vitrification process capability currently being constructed in the WTP or supplementing the WTP's capability with supplemental treatment technologies. Thus, decisions to be made by DOE regarding whether to treat all waste in the WTP, as is or expanded, or to supplement its capacity by adding new treatment capability depend on demonstrating the feasibility of supplemental treatment technologies, including supplemental treatment waste-form performance (durability) for long-term groundwater protection.

Appendix E, Section E.1.3.3.1, discusses the DOE Technology Readiness Assessment that included Business Case No. 7 (LAW First and Bulk Vitrification with Tank Farm Pretreatment), i.e., early startup of the LAW treatment process. However, at the time of the Draft TC & WM EIS preparation, DOE had not made a decision on whether to support implementation of this business case. Since then, DOE has commissioned an external technical review of the system planning for alternative supplemental treatment of LAW at Hanford (Kosson et al. 2008). The report (Kosson et al. 2008) from this review concluded that, although the current schedule for completion of the WTP LAW Vitrification Facility and supporting facilities could support early treatment of LAW in 2014, such early startup would require an interim pretreatment capability and the means for disposition of secondary waste. Since 2008, DOE has been evaluating the transition of the WTP from construction to commissioning. Information on this strategy is provided in Appendix E, Section E.1.3.3.2, of this Final TC & WM EIS. The 2020 Vision for WTP Project Transition to Operations (2020 Vision) (WRPS and BNI 2011) evaluates some of the elements identified in earlier DOE reports, but focuses on commissioning of the WTP project and activities essential to starting up the LAW Vitrification Facility, the Analytical Laboratory, and the balance of facilities (BOF), as well as the Pretreatment Facility and the HLW Vitrification Facility. For more information regarding the 2020 Vision, please see Appendix E, Section E.1.3.3.2.

38-2

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington

**Commentor No. 38 (cont'd): Rich McBride**

- 38-3** The purpose of this *TC & WM EIS* is to analyze potential impacts of DOE's proposed actions to retrieve and treat the Hanford tank waste; close the Hanford SST system; store and/or dispose of the waste generated from these tank waste activities; decommission FFTF; and expand or upgrade waste management capabilities to support ongoing and planned waste management activities for on- and offsite waste to facilitate cleanup at Hanford and other DOE sites. Commercial LLW disposal is not within the scope of this EIS.
- 38-4** In general, the scope of this *TC & WM EIS* does not include (nor will the potential NEPA ROD) remediation of waste that has been previously disposed of, including the TRU waste that was disposed of in the low-level radioactive waste burial grounds (LLBGs), as part of the proposed actions evaluated.
- Previous use of unlined trenches for disposal was a big concern to stakeholders and Washington and Oregon States; DOE heard and addressed those concerns and is using lined trenches.
- 38-5** The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the *TC & WM EIS* analyses. These include Tank Closure Alternatives 6A and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all of the SST system.
- 38-6** Performing a cost analysis for transportation accidents is not within the scope of this EIS. The Price-Anderson Act of 1957 (revised in 1967, 1975, and 1988 and extended by the Energy Policy Act of 2005) requires all NRC licensees and DOE contractors to enter into agreements of indemnification for personal injury and property damage due to any nuclear or radiological incident regardless of who may be liable. Section 604 of the act limits the indemnity provided by DOE for its contractors to \$10 billion for each nuclear incident, including legal costs, subject to adjustment for inflation.

**Commentor No. 39: Theresa North**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**

Thank you for your input  
Gracias por su participación

Date/Fecha: 9 Feb 2010

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The inhabitants of the communities along the Columbia River have said again & again that we want Hanford cleaned up. We want it cleaned up - 99.99% retrieval. We want a clean closure. Take out the tanks, contaminated soil & ancillary equipment. Do not put any new waste at Hanford!! Stop wasting our time with these meetings. We have said over & over that we want Hanford taken care of.

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: Theresa North

Address/Dirección: 693 Frankton

City, State, Zip Code/Ciudad, Estado, Zona Postal: Hood River, OR 97031

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Toll-free telephone: 1-888-829-6347 • Toll-free Fax: 1-888-785-2865  
E-mail: TC&WMEIS@doe.com



39-1

DOE is implementing an extensive, ongoing cleanup program at Hanford, as required under RCRA, CERCLA, and/or the TPA, a legal agreement between DOE, Ecology, and EPA. The TPA identifies cleanup actions and schedules, called milestones. The TPA agencies completed negotiations on several Hanford cleanup projects, including the establishment of 29 additional and/or accelerated groundwater and Columbia River protection milestones and target dates. Although not within the scope of this EIS, the projected results of the cleanup efforts are included in the cumulative impacts analysis.

39-1

39-2

39-3

39-4

39-2

The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the TC & WM EIS analyses. These include Tank Closure Alternatives 6A and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all of the SST system, which would effectively remove 100 percent of the waste. Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this Final TC & WM EIS is published in the Federal Register.

39-3

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

39-4

DOE conducted public hearings on the Draft TC & WM EIS as required under DOE's NEPA regulations to give the public an opportunity to learn more about the draft EIS and provide comments on it. DOE has considered all comments received during the public comment period, including those from the hearings, in preparing this Final TC & WM EIS.

Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington

**Commentor No. 40: Barbara Pereira**

U. S. DEPARTMENT OF ENERGY

**Comment Form**  
**Formulario para comentarios**Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: 2/10/2010

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¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Resechos del Establecimiento de Hanford, Richland, Washington (TC &amp; WM EIS)?

Congress, other people, think it is so safe. Why do we have to worry about groundwater contamination that has been ongoing for many years? If nuclear plants are so safe why is workers' risk mentioned? What about the contamination of Columbia River? The surfers unaware - the fishermen eating the contaminated fish - the contaminated well waters - the radiation going through Oregon down wind?

Department of Energy Secretary, Mr. Shue, has a moral, moral obligation to clean up the site - no half baked cleanup of capping with a ~~thin~~ thorough cleanup. If there needs to be more spending - do it as this nuclear waste - leaking into the ground has been here too long. Mr. Shue, come live at Hanford for a year or live in Oregon in Eastern Oregon. Just hope you don't get thyroid cancer.

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*Name/Nombre: Barbara PereiraAddress/Dirección: 1213 SE UmatillaCity, State, Zip Code/Ciudad, Estado, Zona Postal: Portland, OR 97202

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E-mail: TC&WMES@oec.com

40-1

40-1

As specified in Chapter 1, Section 1.1, this TC & WM EIS was prepared in accordance with NEPA regulations. NEPA requires that impacts on the human environment be evaluated (40 CFR 1508.14). Because radiation hazards are associated with the activities described in this EIS, the risk to workers of such hazards are evaluated. Worker health and safety, both radiological and nonradiological aspects, are managed and monitored at Hanford. Radioactive contamination from Hanford has been detected in the Columbia River. DOE monitors the river and publishes annual site environmental reports (Poston, Duncan, and Dirkes 2011) so that the public is aware of environmental impacts resulting from ongoing operations. As presented in Chapter 3, Table 3-13 of this TC & WM EIS, the estimated dose from liquid releases from Hanford to the maximally exposed individual (MEI) in 2010 was 0.056 millirem. The risk of a fatal cancer from this dose is about 1 in 35 million.

This EIS evaluates potential doses to receptors (i.e., different members of the public) who would be exposed through water pathways, that is, to contaminants in groundwater, surface water, or both. The groundwater receptors are a drinking-water well user; a resident farmer; an American Indian resident farmer on the site, at the site boundary, or at the Columbia River; and an American Indian hunter-gatherer along the Columbia River. The surface-water receptors include a resident farmer, and doses to the downstream population are conservatively assumed to be the same as those to this resident farmer. Impacts on these receptors are summarized in the Summary, Tables S-5, S-6, and S-7, and Chapter 2, Tables 2-9, 2-10, and 2-11.

40-2

Funding for Hanford is beyond the scope of this TC & WM EIS.



**Commentor No. 41: Becca and Hazel LeTourneau**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**

Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: 2/10/10

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¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Resechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

Hanford should be completely cleaned up. All tanks should be replaced. All waste should be cleaned from soil and groundwater. No new waste should be brought to Hanford. No waste should be transported through Portland or the surrounding area.

No clean-up plan is safe. No storage is permanent. My 3-year old daughter is with me tonight. To represent the burden on future generations. If we cannot clean up what has already spilled - we cannot process new waste.

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: Becca and Hazel LeTourneau

Address/Dirección: 301 SE 143rd Ave

City, State, Zip Code/Ciudad, Estado, Zona Postal: Portland, OR 97233

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41-1

41-2

41-3

41-1

The impacts of different levels of tank waste retrieval and of different types of SST system closure are addressed in the TC & WM EIS analyses. These include Tank Closure Alternatives 4, 6A, and 6B, which evaluate 99.9 percent retrieval of the tank waste and clean closure of all or part of the SST system. This closure includes the tank system, along with the vadose zone as impacted by the tank farms (i.e., past leaks). Decisions made by DOE on the proposed actions will be based on a number of factors, including health and safety, environmental, economic, and technical considerations; agency statutory missions; and national policy considerations. The decisions on the selected course of action and supporting rationale will be documented in a ROD issued no sooner than 30 days after the EPA Notice of Availability for this Final TC & WM EIS is published in the Federal Register. However, as discussed in the Summary, Section S.1.3.2, and Chapter 1, Section 1.4.2, of this TC & WM EIS, DOE will not make decisions on groundwater remediation, including the remediation of groundwater contamination resulting from non-tank-farm areas in the 200 Areas, because that is being addressed under the CERCLA (42 U.S.C. 9601 et seq.) process. DOE is implementing an extensive, ongoing cleanup program at Hanford, as required under RCRA, CERCLA, and/or the TPA, a legal agreement between DOE, Ecology, and EPA. The TPA identifies cleanup actions and schedules, called milestones. The TPA agencies completed negotiations on several Hanford cleanup projects, including the establishment of 29 additional and/or accelerated groundwater and Columbia River protection milestones and target dates.

41-2

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

41-3

DOE agrees with the need to protect the health of future generations. To this end, DOE is sponsoring extensive programs to clean up waste from past practices and prevent more waste such as that in the tanks from entering the environment.

**Commentor No. 41 (cont'd): Becca and Hazel LeTourneau**

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

**Commentor No. 42: John Marks**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**

Thank you for your input  
Gracias por su participación

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*Hanford is already overburdened. Don't make it worse.  
No additional nuclear waste.*

42-1

*Clear up present tank leakage. Remove tanks, Decommit  
soil. Dispose of tanks. Work until you have  
certification from unquestioned outside authority: LAER?*

42-2

42-3

*Learn from your mistakes. Plan to correct them.  
You'll feel better if you do.*

**\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\***

Name/Nombre: *John Marks*

Address/Dirección: *1400 NE 2nd Ave Apt 802*

City, State, Zip Code/Ciudad, Estado, Zona Postal: *Portland 97232*

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Toll-free Telephone: 1-888-829-6347 • Toll-free Fax: 1-888-785-2865  
E-mail: TC&WMEIS@scdc.com



42-1

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

42-2

As analyzed in this TC & WM EIS, 67 of the 149 SSTs at Hanford are known or are suspected to have leaked liquid waste to the environment between the 1950s and the present, some of which has reached the groundwater. Estimates of the total leak loss range from less than 2.8 million to as much as 3.97 million liters (750,000 to 1,050,000 gallons). DOE recognizes that groundwater contamination from past leaks is a concern at Hanford and its potential impact on communities downriver from Hanford. One of the purposes of this TC & WM EIS is to analyze potential impacts of DOE's proposed actions to retrieve waste from the buried tanks; treat and dispose of this waste; and close the SST farms by landfill closure, selective clean closure, or clean closure. This analysis is also intended to aid DOE in making decisions regarding cleanup of the past leaks, including remediation of the contamination in the vadose zone.

42-3

DOE must comply with certain legal requirements to undertake specific activities that are part of the proposed actions and alternatives; these requirements are identified throughout this EIS. For example, Chapter 1, Section 1.2.1, discusses Hanford regulatory compliance requirements; and the Washington Administrative Code (WAC) regulations DOE must meet for the proposed closure of the SSTs. Section 1.9, which describes the alternatives evaluated in this EIS, refers to the RCRA, WAC, and DOE order requirements that must be met for DOE to implement Tank Closure alternatives. The very nature of "environmental impacts analysis" requires DOE to analyze and describe in this EIS how proposed processes and technologies would operate; what results they are expected to achieve; what end products or byproducts might result; and how these measure up against the legal requirements that apply. Statutory, regulatory, Executive order, and DOE requirements are discussed in the context of each chapter and are listed in the references at the end of each chapter. However, the International Atomic Energy Agency does not have authority over Hanford.



**Commentor No. 43: Kathy Krisinski**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: 2/10/10

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I am against Federal plans to  
use Hanford as a National  
Radioactive Waste Dump and  
abandon existing contamination.  
To do so would be to abandon  
our future generation, wildlife  
and current health of the  
people. You can not tell me that  
Tritium, Uranium, ect can be  
stored safely without eventual leaks  
and wear. To have Hanford as

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: Kathy Krisinski  
Address/Dirección: 11745 SE Corn St Portland, OR 97266  
City, State, Zip Code/Ciudad, Estado, Zona Postal:

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43-1

43-1

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

43-2

43-2

Decisions regarding the long-term storage of mercury are outside the scope of this TC & WM EIS. DOE evaluated the adequacy of 7 potential sites for the storage of elemental mercury in the *Final Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement* (DOE 2011b); details of how DOE established the alternative sites to be analyzed are presented in Chapter 1, Section 1.5.1, of that document. DOE further identifies in that EIS the Waste Control Specialists site near Andrews, Texas, as the Preferred Alternative for conducting the proposed mercury management and storage activities. DOE has not made any decision with regard to the *Final Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement*.

Commentor No. 43 (cont'd): Kathy Krisinski

a "Candidate" site for long term  
mercury storage is ludicrous.  
With risks of impacts on developing  
fetus, impaired motor and cognitive  
skills. The impact on our rivers  
and oceans and drinking water  
with these contaminants leaking  
in to our water is a crime  
not a solution.

43-2  
cont'd

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**Commentor No. 44: Thomas Clark**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**

Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: \_\_\_\_\_

1. What comments do you have on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)?  
¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Resechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

- ① Contents of tanks are not inert || 44-1  
Will Dept release videos of prior investigations? || 44-2  
② What amount of escaped liquid mixture (chemical and nuclear) has been detected, measured, and recovered? || 44-3  
③ What percentage of the total created is this? || 44-4  
④ Will the U.S. Government pay for present and future damages including medical, mental and healthcare? || 44-5  
⑤ Where are the environmental sensors? || 44-6  
⑥ What training and support exists for Washington and Oregon Healthcare Personnel  
⑦ Information, training, protection for Citizens and Residents

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: Thomas Clark  
Address/Dirección: 10490 SW Meier Drive, Tualatin, OR 97062  
City, State, Zip Code/Ciudad, Estado, Zona Postal: ( ) ( ) ( ) - ( ) ( ) ( )

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For more information contact: Mary Beth Burandt, Document Manager,  
TC & WM EIS, P.O. Box 1178, Richland, WA 99352  
Toll-free Telephone: 1-888-829-6347 • Toll-free Fax: 1-888-785-2865  
E-mail: TC@WMER@scac.com



- 44-1 DOE agrees the tanks are not inert.  
44-2 DOE believes the commentor is referring to videos of tank retrievals or tank inspections related to the SSTs. These videos are posted on the Hanford website (<http://www.hanford.gov>, in the "Video Library" section). Videos of older tank inspections that are no longer on the website can be requested from the ORP Office of Communication by phone at 509-372-8656.  
44-3 The commentor is referred to Appendix D, Section D.1, as well as Appendix S. These appendices and their accompanying tables provide the best-available estimates of the liquid waste volumes and constituents that have been released to the environment at Hanford. Calculating a percentage of liquid waste that has been released to the environment from the volume of liquid waste generated is not possible because many of the liquid waste streams were either concentrated or further treated prior to release.  
44-4 The role of the U.S. Government in paying for present and future health care issues is not within the scope of this EIS. This TC & WM EIS addresses proposed actions to retrieve and treat the Hanford tank waste; close the Hanford SST system; store and/or dispose of the waste generated from these tank waste activities; decommission FFTF; and expand or upgrade waste management capabilities to support ongoing and planned waste management activities for on- and offsite waste to facilitate cleanup at Hanford and other DOE sites.  
44-5 Regarding the location of environmental sensors, DOE surmises that the commentor is concerned about measures and equipment such as ambient air quality monitors, groundwater monitoring wells, and similar collection devices to detect contaminants that could impact human health and the environment. DOE performs environmental monitoring and surveillance for radioactive and nonradioactive constituents in air and liquid effluent emissions from Hanford facilities and for potentially affected environmental media on Hanford and in offsite locations for analysis and comparison with regulatory standards. Media surveyed on a regular basis include ambient air, soils, sediments, surface water, drinking water, and groundwater. DOE also monitors vegetation, fish, and wildlife for Hanford-produced contaminants. Sampling locations, numbers, and distribution and their analysis results are detailed in publicly available documents, such as the annual Hanford Site environmental report (Poston, Duncan, and Dirkes 2011). Chapter 3 of this TC & WM EIS summarizes the results of monitoring and surveillance activities relevant to selected environmental resources.

Commentor No. 44 (cont'd): Thomas Clark

44-6 DOE uses DOE Order 151.1C, *Comprehensive Emergency Management System*, as a basis to establish a comprehensive emergency management program that provides detailed, hazard-specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals, as discussed in this *TC & WM EIS*, in Chapter 3, Sections 3.2.10.5 and 3.3.10.5, emergency preparedness at Hanford and INL, respectively. DOE provides technical assistance to other Federal agencies and to state and local governments. Hanford contractors are responsible for maintaining emergency plans and response procedures for all facilities, operations, and activities under their jurisdiction and for implementing those plans and procedures during emergencies. Plans and procedures are reviewed and approved by DOE in accordance with DOE Order 151.1C. The DOE, contractor, and state and local government plans are fully coordinated and integrated. The Transportation Emergency Preparedness Program was established by DOE to ensure its operating contractors and state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive material. This program is a component of the overall emergency management system established by DOE Order 151.1C.

**Commentor No. 45: Richard Piland**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**Thank you for your input  
Gracias por su participaciónDate/Fecha: 2-10-10

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

1. What comments do you have on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)?  
¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Desechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

1. HANFORD MUST BE CLEANED UP,  
CONTAMINATING THE COLUMBIA RIVER FOR  
THOUSANDS OF YEARS IS NOT ACCEPTABLE. HOW ARROGANT  
CAN WE BE TO CONTEMPLATE DOING THAT?

2. NO NUCLEAR WASTE TO BE TRANSPORTED TO  
AND STORED IN THE NORTHWEST.

\*\* CONTINUE ON BACK FOR MORE SPACE \*\*  
\*\* CONTINUAR AL DORSO PARA MÁS ESPACIO \*\*

Name/Nombre: RICHARD PILANDAddress/Dirección: 10465 SW MILLER CT.City, State, Zip Code/Ciudad, Estado, Zona Postal: TUALATIN, OR 97062

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TC & WM EIS, P.O. Box 1178, Richland, WA 99352  
Toll-free telephone: 1-888-829-6347 • Toll-free Fax: 1-888-785-2865  
E-mail: TC&WMEIS@doe.com



45-1

45-1

In general, the scope of this TC & WM EIS does not include groundwater remediation activity as part of the proposed actions evaluated. However, DOE is implementing an extensive, ongoing cleanup program at Hanford, as required under RCRA, CERCLA, and/or the TPA, a legal agreement between DOE, Ecology, and EPA. The TPA identifies cleanup actions and schedules, called milestones. The TPA agencies completed negotiations on several Hanford cleanup projects, including the establishment of 29 additional and/or accelerated groundwater and Columbia River protection milestones and target dates.

45-2

45-2

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

**Commentor No. 46: Richard F. Till**

U. S. DEPARTMENT OF ENERGY

**Comment Form  
Formulario para comentarios**

Thank you for your input  
Gracias por su participación

PLEASE PRINT / FAVOR DE ESCRIBIR CLARAMENTE

Date/Fecha: 2/10/2010

1. What comments do you have on the Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)?  
¿Que comentarios tiene usted sobre el Borrador de la Declaración Sobre el Impacto Ambiental del Cierre de Contenedores y la Disposición de Desechos del Establecimiento de Hanford, Richland, Washington (TC & WM EIS)?

The Final EIS should explicitly preclude the ~~shipment~~ treatment of offsite nuclear waste at the proposed vitrification plant. Allowing waste to be shipped to Hanford is an creates an unreasonable risk to the public and the environment. If offsite waste from other locations needs to be vitrified, the Department of Energy should construct new vitrification facilities at those sites. To guarantee the residents of and visitors to Washington and Oregon are not put at risk from the shipment of waste, the Final EIS must include strict conditions requiring the closure of the Hanford vitrification plant when all Hanford waste is treated.

The ~~proposed~~ Dept. of Energy's long history of reckless mismanagement at Hanford must come to an end. The sad history of environmental degradation and harm to human health must come to a close.

I submit these comments as a native of Washington State and a current resident of Oregon and a boater that uses the Columbia River.

Name/Nombre: Richard F. Till

Address/Dirección: 2515 SE 51st St

City, State, Zip Code/Ciudad, Estado, Zona Postal: Portland OR 97206

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E-mail: TC&WMEIS@dcsc.com



46-1

Regarding the commentor's concern about the transport of LLW and MLLW from other DOE sites to Hanford for disposal, DOE will be deferring the decision on sending LLW or MLLW from other DOE sites to Hanford for disposal (with some limited specific exceptions), at least until the WTP is operational, subject to appropriate NEPA review. For a more comprehensive discussion on the transport and disposal of offsite waste, see Section 2.1 of this CRD.

The TC & WM EIS analysis shows that receipt of offsite waste streams that contain specific amounts of certain isotopes, specifically, iodine-129 and technetium-99, could cause an adverse impact on the environment. Therefore, one means of mitigating this impact would be for DOE to limit disposal of offsite waste streams at Hanford. Other mitigation measures, such as recycling secondary-waste streams into the primary-waste-stream feeds within the WTP to increase iodine-129 capture in ILAW and bulk vitrification glass, are discussed in Chapter 7, Section 7.5, of this final EIS.

Although waste from other DOE sites may be packaged (including solidification) at Hanford for shipment elsewhere, offsite waste will not be vitrified at Hanford. This TC & WM EIS analyzes the disposal of offsite LLW and MLLW waste from other DOE facilities, but the waste would be treated at the generating DOE site prior to shipment to Hanford for disposal.

46-2

See response to comment 46-1 regarding the transport and disposal of offsite waste.

46-5

46-3

See response to comment 46-1 regarding the transport and disposal of offsite waste.

46-4

The WTP is currently under construction in the 200-East Area of Hanford. As such, construction (and subsequent operations and deactivation) of the WTP was analyzed under each Tank Closure alternative to establish a common reference point for use in comparing alternatives. However, closure of the WTP is not part of the proposed actions in this TC & WM EIS because the WTP is needed to complete waste treatment activities. See Chapter 1, Section 1.4.2, Decisions Not to be Made, for more information. Closure of the WTP will be addressed at a later date and will be subject to appropriate future NEPA review.

46-5

In general, the scope of this TC & WM EIS does not include groundwater remediation activity as part of the proposed actions evaluated. However, DOE is implementing an extensive, ongoing cleanup program at Hanford, as required under RCRA, CERCLA, and/or the TPA, a legal agreement between DOE, Ecology, and EPA. The TPA identifies cleanup actions and schedules, called